



# ***JPRS Report***

# **Environmental Issues**

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# Environmental Issues

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## Second International Climate Change Conference Agenda Viewed

91WN0071B Paris *LE MONDE* in French  
31 Oct 90 p 11

[Article by Yvonne Rebeyrol: "Warming of the Planet Is Inevitable"; first paragraph is *LE MONDE* introduction]

[Text] The second World Climate Conference opened in Geneva 29 October. The entire week's meetings will be devoted to scientific presentations. Next 6 and 7 November the meetings will be political, since they will involve the participation of government heads, including Mr. Michel Rocard, or ministers from some 70 countries. Eleven years after the first World Climate Conference, there is certainty that warming will affect the entire planet. The only question is when, and by how many degrees.

The second World Climate Conference is very different from the first, which was held in Geneva from 12 to 16 February, 1979. Not in the number of scientists (500 this year, 400 in 1979) or countries represented (a hundred each time), but by the subjects covered and the participation of ministers. In 1979, virtually all the presentations dealt with the atmosphere. True, a few concerned the ocean, and just dealt with one human factors. In 1990 atmospheric studies are important but, from the very opening session, emphasis was put on the great unknown factor of the ocean and on the agricultural, industrial, economic, social, and human effects that the possible change in the planet's climate over the next 30, 50, or 100 years may have.

Dr. James Dooge, a hydrologist, professor at the University College of Dublin's Research Center on Water Resources, former president of the Royal Irish Academy<sup>1</sup> and also former Irish minister of foreign affairs, is well qualified to discuss the differences between the two world climate conferences. He was on the organizing committee of the first and is presiding over the second.

In 1979, no one knew how to study the impact of climatic change on human activities. In the 10 years that followed, a methodology was developed. Consequently, according to Dr. Dooge, the next decade will be devoted to those impacts and to the studies that are vital in acquiring a better knowledge of the parameters of the climatic change which, in all likelihood, will occur during the next century.

Specialists are perfectly unanimous. For one thing, the atmospheric content of gases promoting the greenhouse effect<sup>2</sup>(carbon gas, methane, nitrous oxide, chlorofluorocarbons, to name just the main ones) continues to grow with the increase in human, industrial, and agricultural activity.

### The Mystery of the Oceans

For another, analysis of an ice core sample taken from the Antarctic shows that over the last 14,000 years,

glacial periods have coincided perfectly with decreases in carbon and methane gas content, while warmings have followed increases in those gases like clockwork. It is not, moreover, known whether the coolings and warmings have been the causes or consequences of those upward and downward swings.

We must therefore expect, in the medium term, to see a significant and rapid general warming of our planet. But there is also unanimity on the uncertainty that still prevails concerning the processes and consequences of this upcoming warming, for which no tangible signature has yet been identified. The ocean, whose reaction time is several centuries long, is still very poorly understood, although it surely plays an essential role in the behavior of the atmosphere<sup>3</sup> and in the carbon cycle<sup>4</sup>.

Likewise, there is no way to accurately predict for the next century either global warming (from 1 to 5 degrees C, depending on estimates), or still less regional warmings, probably more marked in the upper latitudes. Nor can scientists predict regional climate changes, the consequences of all those changes on temperature and precipitation, and thus on natural vegetation and agriculture, or the rising of the seas (from one to several decimeters), primarily due to thermal dilatation<sup>5</sup>.

Serious scientists may have doubts about the speed and magnitude of the climatic changes, but not about their inevitability. Consequently, all the participants in the Geneva conference agree on one absolute necessity: We do not have the time to wait for certainty. Starting immediately, political authorities must decide to reduce gas emissions with greenhouse effects. Without mandatory worldwide measures—hence the idea for a general convention regulating many activities, already under discussion and which it is hoped can be wrapped up in 1992 in Brazil—humanity is courting catastrophe.

In 1979 the first World Climate Conference decided to launch the World Program of Climate Research, primarily to investigate atmospheric physics. In 1986, the International Geospheric-Biospheric Program added biology and chemistry. Finally, since 1988 the Intergovernmental Expert Group for Climatic Change Study has been assigned to draft an "inventory of the premises" to inform decisionmakers and bring about a consensus on protecting the environment.

The reports of the group of experts, to which some 1,500 scientists from around the world contributed, are now being discussed by the second World Climate Conference. They will be presented to the ministers next week. Only the latter are empowered to set the orientations of the highly costly research programs, and to negotiate and decide on the measures necessary, not to avoid any change in the climate—which is already impossible—but to moderate the impact and safeguard life on our planet as much as possible. They must also deal with all the citizens, who must be honestly informed to consent to a change in their habits.

## Footnotes

1. Ireland has become a republic, but the name of the Irish Royal Academy, 200 years old, has never been changed.

2. Certain natural (carbon gas, methane, nitrous oxide) and artificial (chlorofluorocarbons) gases present in a few hundred parts per million in the atmosphere have the property of sending back to the Earth the infrared radiation emitted by the ground warmed through absorption of a part of solar radiation, just as the glass or polyethylene walls of a greenhouse trap infrared radiation. This trapped radiation warms the lower atmosphere or the inside of the greenhouse.

3. It is the ocean, which covers 71 percent of the globe's surface, that absorbs the greatest part of solar energy and transmits it to the atmosphere via highly complex exchanges.

4. With all the carbon gas emitted by industry over the last 100 years, the atmospheric content of carbon should have increased twice as much as it has. It is therefore believed that the missing carbon gas was absorbed by the ocean and continental biosphere. But how and why?

5. A heated body expands. If the top 200 meters of the world's ocean warms up by 1°C, overall sea level will rise 20 centimeters.

**World Climate Conference Seen Successful**

91WN0128A Geneva JOURNAL DE GENEVE  
in French 5 Nov 90 p 4

[Article entitled: "World Conference Closes With Its First Success"—first paragraph is JOURNAL DE GENEVE introduction]

[Text] Some 700 scientists and experts from over 120 countries reached agreement on a statement recognizing that, unless the rise in concentrations of greenhouse-effect gases is "slowed," humanity will experience climatic changes which will put nature and the life of society to "a test the like of which it has not seen in 10,000 years."

This statement marking the end of the first part of the World Climate Conference, kicked off Monday in Geneva, is the product of "long consultations." The Conference's coordinator, Howard Ferguson, admitted Sunday afternoon that the consensus patched together at the end of a drafting session that concluded during the night of Saturday/Sunday, and had lasted around the clock in its final phase, had been "very difficult" to obtain.

This "very good document" will now be submitted to the second part of the conference, which will gather environmental ministers from nearly 130 countries in Geneva on Tuesday and Wednesday. It will be presided over by the federal councillor Flavio Cotti.

The meeting is expected to result in a political statement inspired by the work of the scientists. It should include the announcement of immediate measures to reduce carbon gas (CO<sub>2</sub>) emissions, considered the prime culprit of planetary warming.

Indeed, if we want to stabilize concentrations of CO<sub>2</sub> between now and the middle of the 21st century, net carbon gas emissions must be reduced by 1 to 2 percent annually "starting today" and for the next 60 years, the scientific statement says.

"For now" (read, before third-world countries fully enter their industrialization phase) about 75 percent of total CO<sub>2</sub> emissions are traceable to industrialized countries.

Admittedly, the statement acknowledges, "both scientific and economic uncertainties subsist." The latter concern in particular the rate of average temperature increases (2 to 5 degrees between now and the end of the 21st century, scientists now think) and the extent of the rise in sea level (between 30 cm and 1 meter).

Nonetheless, countries "must immediately" begin taking action to reduce the sources of greenhouse-effect gases (CO<sub>2</sub>, methane, CFC).

In the scientists' view, there are various "affordable and technically feasible solutions for cutting CO<sub>2</sub> emissions in all countries." By applying them, "many industrialized countries could stabilize CO<sub>2</sub> emissions from the energy sector" (oil, coal, etc.) and "reduce them by at least 20 percent between now and 2005."

In a statement published Sunday afternoon, the non-government organizations (NGO's) participating in the Climate Conference were especially pleased that the men of science had concluded that their "uncertainties did not justify political delay" in adopting "now" decisions to cut back emissions of gases responsible for the greenhouse effect.

**European Agreement Reached on Lessening Carbon Dioxide Emissions**

91WN0128B Geneva JOURNAL DE GENEVE  
in French 6 Nov 90 p 32

[Article by P.-E. Dentan: "West European Countries Agree To Combat Greenhouse Effect"—first paragraph is JOURNAL DE GENEVE introduction]

[Text] The Europe of Eighteen has set the tone. All EC and EFTA (European Free Trade Association) countries agreed yesterday to stabilize their carbon oxide (CO<sub>2</sub>) emissions at 1990 levels by the year 2000, and to begin reducing them at the beginning of the next century.

Informal as it was, the meeting, presided by federal councillor Flavio Cotti and the EC environmental commissioner, Mr. de Matea, proved that a united Europe could take initiatives of worldwide significance. For it has not yet convinced the United States that it must join the common fight to protect our planet. The United

States is sending only the Department of Commerce under secretary for the oceans and the atmosphere to today's and tomorrow's ministerial conference in Geneva, while the Europeans are sending Mrs. Thatcher, Mr. Rocard, and other ministers. King Hussein of Jordan will also be among the speakers. The Soviet Union, bled dry, will also have to be convinced to allocate resources for measures to protect its environment.

The ministers who met yesterday debated the merits of rail transport, environmental constraints on freight-forwarding countries, and the need to make less polluting engines and to step up research on non-polluting "second generation" fuels.

The situation in Central European countries was a keen concern of the participants; they therefore decided to find funding to help those countries transform their polluting industries, to start reforestation programs, etc. They would also like to see new resources made available to third-world countries, equally forced to limit their consumption of fossil fuel.

But they were careful to reaffirm that the prime responsibility lay with industrialized countries: Last year, Europe spewed 754 metric tons of CO<sub>2</sub> into the atmosphere, and North America 1,450 metric tons.

In all the countries of the Europe of Eighteen, there is talk of special anti-CO<sub>2</sub> taxes. The ministers wanted to see the measures "harmonized" to some extent; the matter will be taken up again in the OECD (Organization for Economic Cooperation and Development) environmental committee next January.

Great strides are being made toward the creation of the desired European Environmental Agency. "Let's leave aside the petty question of which city will be its headquarters," says the European commissioner, "but let's create it without delay."

#### European Project To Study Climatic Fluctuations

91MI0018A Bonn *TECHNOLOGIE-NACHRICHTEN*  
*MANAGEMENT-INFORMATIONEN* in German  
26 Sep 90 pp 12-13

[Excerpts] The Koerber Foundation in Hamburg has awarded its "Sponsorship Prize for European Science" to three climatologists: Prof. Klaus Hasselmann, director at the Max Planck Institute of Meteorology in Hamburg, Prof. Lennart Bengtsson of the European Medium-Term Weather Forecasting Center in Reading, Great Britain, and Prof. Bert Bolin of Stockholm University. The three scientists plan to use the 1.25 million German marks [DM] prize for a joint research project on the forecasting of natural climatic fluctuations. The goal is to develop an integrated climatic model comprising the atmosphere, the ocean, and the global carbon cycle, with which natural climatic fluctuations over periods ranging from a few months to several years may be simulated and forecast. [passage omitted]

Unlike the weather forecasts, this involves taking more into consideration than the current situation and the physical characteristics of the atmosphere. Indeed, the atmosphere is but one of several components that combine to form the earth's climatic system: Apart from the atmosphere, these include the oceans, the frozen and snowy regions, land-covered areas, the biosphere, and all life on earth. Climate, the longer-term, statistical "general state" of the weather at a specific location or in a wider area, comes about as a result of the complex interplay of these different components.

It is extremely difficult to describe and reproduce this interplay in a computer model. First, all the interrelations at work within this network of influences are by no means known yet, and second, the individual components of the system react and "work" in widely varying time scales. Thus, the overall climatic system may be compared to a set of coupled pendulums, each of which swings in a different cycle and which continuously influence one another, setting each other in motion or inhibiting one another.

High-performance, large-scale computers have meanwhile brought us to the point where the basic interaction between at least the two most important pendulums, the atmosphere and the oceans, can be understood. Prof. Klaus Hasselmann's department at the Max Planck Institute of Meteorology in Hamburg is working on developing and refining integrated ocean-atmosphere models of this type.

It also produced the first ever climatic prognosis late last year. It covers what is known as the ENSO phenomenon, ENSO standing for El Nino and Southern Oscillation. This involves a warm oceanic current—El Nino means "baby Jesus"—which always occurs at Christmas. El Nino appears with particular strength at irregular intervals of three to six years—and on such occasions it is associated with an extensive modification in the atmospheric circulation over the entire tropical area of the Pacific Ocean: the Southern Oscillation. The consequence is unusual droughts and torrential rain in Australia and the Latin American countries, and long-distance effects of these tropical anomalies can be traced as far away as North America and even Europe.

The ENSO phenomenon is an example of a natural climatic fluctuation on an interannual time scale. And it is a favorite "touchstone" for climatic models designed to forecast such fluctuations.

Hasselmann says, "Only then shall we be able to assess and understand the impact of the global warming that man causes through the emission of greenhouse gases."

The "model-builders" hope to make substantial headway in this joint project, which the sponsorship prize for European science has now made possible. Under Prof. Lennart Bengtsson, the European Medium-Term Weather Forecasting Center in Reading has developed what is acknowledged to be the best global model of atmospheric circulation in the world and is thus an



important component for integrated models. In the near future, effective 1 January 1991, Bengtsson will be working directly with Hasselmann in the latter's capacity of director at the Hamburg [Max Planck Institute] of Meteorology.

Prof. Bert Bolin, the third partner in the joint project, will contribute another important aspect to this research: He is studying the relationship between climatic change and the concentration of carbon dioxide in the atmosphere. Apart from the continuous increase in the level of this greenhouse gas as a result of fossile fuel use and its annual cycle, which follows the carbon dioxide metabolism of plants, clear interannual fluctuations in the carbon dioxide content of the atmosphere are found, and these in turn are strongly correlated with interannual climatic fluctuations. The goal is to represent this correlation in an extended model of the global oceanic-atmospheric carbon cycle. Future carbon dioxide levels and the concomitant global warming could then be extrapolated. This would also reflect the repercussions of climatic change on the carbon cycle, and a clearer picture will thus emerge of what we may expect in the coming decades, over and above natural climatic fluctuations.

### **Greenpeace Reports on EC-Poland 'Waste Trade'**

91WN0167A Frankfurt FRANKFURTER

RUNDSCHAU in German 8 Nov 90 pp 30-31

[FRANKFURTER RUNDSCHAU documentary report: "There Is Only One Choice—Remain Poor or Become a Waste Dump: Greenpeace Dossier Exposes Western Dealers' Waste Exports to Poland"—first paragraph is FRANKFURTER RUNDSCHAU introduction]

[Text] With the increase in the resistance in Western nations to the contamination of the soil, the air and the water, the legal regulations on waste disposal have become more and more strict and costly. Waste dealers and unscrupulous enterprises believe that they can get around the requirements in their own countries by declaring the countries of the so-called Third World and the former Eastern Bloc to be a rubbish heap and by dumping the rubbish of prosperity on them. In a six-month study, the environmental organization Greenpeace investigated the export of wastes to Poland. The results were presented at two press conferences in Warsaw and Brussels. The FRANKFURTER RUNDSCHAU documents the dossier, *Poland: the Garbage Invasion*, in excerpts. The full report, which exists in Polish, English, and German, can be requested at Greenpeace, Vorsetzen 53, 2000 Hamburg 11.

In this report, Greenpeace presents to the international public 64 known waste deals, in which Poland was the target country for toxic wastes from the West. Most of these transactions took place in the last two years. This report is based on only six months of research. In many cases, the basic information comes from sources accessible to the public.

Greenpeace is publishing this report to make the involved governments and the public aware that, although the scandalous occurrences in Africa and other countries of the Third World have declined somewhat, the exploitation of poorer countries through the export of wastes is continuing.

Hand in hand with the opening of Eastern Europe for the market economy and for aid packets and joint ventures, the borders were also opened for quite different enterprises: the importation of shipments with the poisonous refuse of some of the most prosperous countries of the world.

In the postwar period, industrialization was pushed vigorously in the East as well as in the West. The result was the rise of many dirty, waste-producing industrial branches. Whereas the East European governments completed ignored problems of environmental pollution and simply released their toxic wastes into the environment through drain pipes and smokestacks, the governments in the West were soon forced to face these problems.

Unfortunately this merely meant that instead of employing production technologies that reduce wastes, they attacked the problem only at the end: their "solutions" were limited to collecting and concentrating the residues. They then did not know what to do with the waste, which was now concentrated in barrels, ash, or slag.

Today these results of West European "environmental protection" are being shipped in alarming quantities to Poland, a country that has enough environmental problems of its own. There the waste is supposed to be unloaded, and burned or recycled. But as we have seen in other countries, the recycling is often used as a pretext to get rid of dangerous and costly waste materials.

Many of these imports came about simply through the exploitation of the political unrest and economic difficulties that went along with the reforms in Poland. It is remarkable that, whereas officially Poland is pursuing a strict policy and legislation to control waste imports, the Greenpeace investigation makes clear that it is very difficult to enforce such laws and that the waste deals are continuing or even increasing. Although many import projects are being rejected by the authorities, we may assume that a much larger number of waste loads are crossing the border and are not discovered.

Meanwhile, Poland has been offered more than 22 million tons and it is known that more than 46,000 tons are already in the country.

Jan Klapotowski, deputy director of a department of the Ministry for Environmental Protection, stated: "The possibility of earning hard dollars has paralyzed the conscience of some people or disrupted certain brain functions, whereby they have forgotten the well-being of the society. The opening for foreign trade...has created good opportunities for enterprising business people...but unfortunately also in the area of waste imports to

Poland..." (Henryk Maziejuk, "Waste Imports," Warsaw weekly PERSPEKTIWY, No 21/89, last week in May).

Poland's government is making a great effort to stop the flood of waste imports but it is clearly the responsibility of the waste-producing countries to establish the legal structures to forestall this kind of heightened exploitation. So far, however, only Italy and Norway among the Western industrial nations have issued legal prohibitions against waste exports.

Although the EC has announced that in relation to the handling of wastes it wants to be guided by the principles of self-sufficiency and proximity (compare Meeting Document, CONS/ENV/90/4, Environment Council, Luxembourg, 7 July 1990), it has not included any prohibition of waste export to countries outside the Community in the recently drafted guideline. Nevertheless, there is still time to correct this omission and there are other legal possibilities and forums that can be employed for this purpose.

The data of the following Greenpeace study make clear that only a total export ban in the industrial states can check the new epidemic of trade in wastes.

#### Waste Imports Into Poland

The Poles were immediately "rewarded" for the opening of their borders to Western economic undertakings. Preliminary investigations by Greenpeace show that since the beginning of 1989 at least 22 million tons of toxic wastes of all kinds have been offered to Poland. At least 46,000 tons from countries such as the FRG, Austria, and Sweden have actually found their way into the country.

It is known that in the last two years at least 72 foreign industrial firms, disposers and brokers from 13 countries were involved in 64 waste deals in the direction of Poland. Half of all projects come from the FRG, and actively involved 41 West German firms.

Seven thousand tons of filter ash from West Berlin were accommodated in the Polish cement industry and 9,300

tons of steel dusts from Thyssen AG with admixtures of PCB's [Polychlorinated Biphenyls] came to a Polish smelting plant for processing as early as 1988. In August 1988, the Turkish authorities had rejected an entire shipload of this material because of the PCB load.

Scandinavian industry, above all Swedish firms, are now trying to establish a market for the inexpensive removal of electrical equipment and cables—materials the recycling which turned out to be highly problematical only in recent years.

More than 15,000 imported barrels from different shipments filled with paint wastes and used solvents, detergents and adhesives—a total of at least 5,207 tons from Austria and the FRG, among other places—lie at different places in Poland in part unsecured and are endangering drinking water supplies. A worker died when a shed full of barrels exploded.

Meanwhile, the only plan for dealing with these wastes met strong opposition and failed. An incinerator was hurriedly set up in a depot of the chemical troops of the Polish Army south of Olsztyn. Peasants from the surrounding villages stormed the depot and used tractors to tear down the incinerator.

Fifty thousand used batteries were brought to the market as "new." Dried up paint residues were imported for "recycling."

Complete facilities for the burning and "recycling" of toxic wastes and used oil were offered free of charge under the condition that the imported wastes first be processed and the residues remain in Poland.

The known projects for the exporting of wastes to Poland are grouped in seven different waste flows: mixed, unspecified, and diverse; paints, solvents, and other liquid chemicals; metal wastes and scrap electronic materials; sewage sludge from industry and municipalities; dredging sludge from rivers and harbors; combustion residues, ash, dross, and filter residues; incineration and recycling facilities for imported wastes.

Statistical Overview [of Waste Projects]

	Projects	Quantified	Offered	Imported
Mixed, unspecified, and diverse wastes	17	10	17,295,960tons	1,920tons
Used solvents, paints, and liquid chemicals	10	7	5,823tons	5,207tons
Metal wastes and scrap electronic materials	22	13	44,978tons	12,704tons
Sewage sludge from industry and municipalities	4	2	6,200tons	800tons
Dredging sludge from rivers and harbors	3	2	4,350,000tons	—
Combustion residues, ash and filter residues	5	2	63,000tons	27,000tons

Statistical Overview [of Waste Projects] (Continued)

	Projects	Quantified	Offered	Imported
Total of wastes offered and imported	61	36	21,745,961 tons	46,001 tons
Facilities being negotiated for imported wastes			3	—

### International Policy

When left to the free market, toxic wastes go the way of least resistance. The poisonous industrial by-products quite automatically end up in those regions that have the least political and economic power to reject them. The economic differential that is expressed in the different costs in different regions of the world means that the wastes are moved around. This differential is determined by many factors such as, for example, wage costs, land prices, and applied technologies. But the different costs that arise as a result of the different legislation in the area of environmental protection and liability are of crucial importance.

In recent years, the public in the Western industrial nations has increasingly opposed the poisoning of its soil, air, and water. This growing displeasure of the population has forced the industrial nations to undertake more and more stringent and costly measures for the disposal of wastes. The result of this legislation is that certain kinds of waste disposal were either completely forbidden or gradually stopped. This includes, for example, the burning of wastes on the North Sea (the North Sea Declaration of the "Third International North Sea Protection Conference" on 7-8 March 1990 states that burning on the high seas will end by 31 December 1991—such an urgent agreement is sought for the "Oslo Convention") or the dumping of certain kinds of wastes in the United States (the EPA forbids the dumping of an additional 83 RCRA [Resource Conservation and Recovery Act] wastes, HAZNEWS, No 12, March 1989, p 20), as well as greater environmental demands, which also mean higher costs, or more stringent liability requirements for waste producers with respect to the future harm caused by the disposal of their wastes.

In addition, the definition of special wastes is being expanded in the legislation, with the result that even more wastes must be handled separately (Harvey Yakowitz, environmental consultant for the OECD in Paris, said that new and more comprehensive definitions for special wastes in the EC will lead to almost a doubling of the special wastes to be disposed of. The result will be a new flood of toxic waste exports to "non-EC states," "Spotlight on the Waste Trade; Industry v. Environmentalists—the Debate" ENVIRONMENT MATTERS, June 1990, p 10-16). As the American environmental agency EPA itself admitted, the United States, a huge producer of wastes, lacks the necessary facilities for the disposal of special wastes. Nevertheless, the EPA has forbidden the dumping of an increasingly large number of so-called RCRA wastes (in March 1989, it was 83 different kinds of wastes) (HAZNEWS, No 12, p 20).

The same thing is true for the European Community. The recent decisions by the Oslo Commission, the Convention of Barcelona, and the meeting of ministers of the North Sea states have practically forbidden the burning of wastes on the high seas. Furthermore the Community Strategy for Waste Management (the EC resolution on the disposal of wastes) of 18 September 1989 sets forth that the dumping of many kinds of wastes within the Community will gradually be stopped ("A Community Strategy for Waste Management", Communication from the Commission to the Council and to Parliament, Commission of the European Communities, SEC (89) 934 final, Brussels, 18 September 1989, pp 13-15).

The lack of capacities for the disposal of wastes and the legal pressure to handle the wastes according to regulations practically force their export. And the pattern under which the dumping of wastes has already been practiced within industrialized countries is now repeating itself on a global scale; producers of wastes are trying to get rid of them in the most remote and poorest regions of the world.

The door remains open for these unscrupulous business deals, for only a few industrial states have taken any action against the exporting of special wastes. There are formal export restrictions only in Norway and Italy. In the last five years, we saw how waste speculators filled ships and trains with toxic wastes and sent this poisonous waste around the world looking for new waste dumps where they could get rid of the legacy of the most prosperous countries with the most waste.

Investigations by Greenpeace have shown that the trade in wastes is being pursued globally and becoming more and more extensive. Thus more than 78 non-OECD states were offered huge quantities of industrial wastes from the United States and Europe (Jim Vallette and Andreas Bernstorff, *The International Trade in Wastes*, fifth edition, Basel, March 1989).

These comparatively poor countries are often forced to make the hopeless decision between poverty and toxic wastes, the choice between a short-term economic advantage and the long-term protection of the health of entire generations of their citizens. The result is that in the period between 1986 and 1988 more than 3 million tons of toxic wastes were exported from OECD countries to non-OECD countries (ibid.).

### The Polish Import Ban

It is not at all surprising that Poland, because of its short porous border and geographic position in the vicinity of



some of the largest waste producers on earth, has become a primary target for waste dumping and the most diverse recycling deals. In view of this pressure from wastes, Poland has resisted in a remarkable way and pursued strict political measures to prevent the importation of wastes.

As early as 1988, prior to the new reform government, Poland's official position in this connection was: "It would be difficult in this stage to achieve a total ban of special waste exports. Nevertheless, the waste disposal should be undertaken as close as possible to the place where the waste arises and waste imports and exports ought to be allowed only as exceptions and under special conditions." (Analysis of Government Responses to the Executive Director's Notes on Hazardous Waste Convention, United Nations Environment Programme, UNEP/Wg.189/Inf. 1, 12 October 1988, p 4).

The current Solidarnosc government has quickly taken legislative steps to tackle this more and more obvious problem. An import ban for special wastes has been in effect since July 1989. Many of the known waste import deals were concluded before the ban could go into effect. But the facts show clearly that an import ban will not be enough to keep the unscrupulous waste dealers from exploiting the political and economic unrest in Poland.

The import ban that is expressed through a new article in the law on environmental protection provides for prison terms for importers of special wastes. The Polish Government has also set up a special department for the waste trade. Despite these measures, it is very difficult for the Polish authorities to carry out and implement this ban. In January 1990, the Polish Ministry for Environmental Protection and Natural Resources (PIOS) stated that the new law is ineffectual, because the customs officials lack the necessary experience and means to inspect the imports and that the penalties for this illegal trade are too lenient.

One of the biggest problems in this area is the vague definition of the term special waste. If wastes are imported under the provision or the pretext that they are to be recycled, then the Polish law may allow these imports. The result is that an extremely dangerous loophole in the law arises, for nothing, even with the best of intentions, can be recycled 100 percent and in most cases substantial quantities of toxic residues will remain behind in Poland. Moreover the new joint ventures with Western firms often make it difficult to determine when imported materials involve raw materials or special wastes (ENVIRONMENT MATTERS, January 1990, pp 5-18).

According to the recently (May 1990) applied strategy, wastes may be brought in for recycling purposes if the recycling process is not dangerous or harmful to the environment and if all resulting residues are returned to the country of origin (Wojciech Swiatek, chairman of the

supervisory authority of the Environmental Ministry, in a conversation on 17 July 1990 with Andreas Bernstorff of Greenpeace FRG).

This could be a positive start if it were not so difficult to control where the wastes end up once they are in the country, whether the recycling process is truly safe and whether the requirement that the residues be reexported is actually observed.

Polish enterprises must now submit their annual balances in hard currency. Accordingly, the prospect of large currency receipts is a strong incentive for Polish recycling enterprises to import wastes.

Although a strict import ban for all special wastes, including in so-called recycling facilities, is urgently needed in Poland, the countries of the West that produce these wastes in the first place bear the primary responsibility for the resolution of this problem. The following attempts to show what these countries have done collectively and individually to overcome the global waste-export crisis in which Poland plays only a sad, minor role.

#### 'Efforts' of the West

##### The Basel Convention

In March 1989, the efforts of the United Nations Environmental Program UNEP to cope with the waste export problem reached their culmination with the signing of the Basel Convention on the control of cross-border transport and disposal of dangerous wastes. In the foregoing negotiations, it was clear from the start that a minority of powerful industrial nations wanted to retain their privilege of sweeping their waste problems out the back door and palming them off on others; most of the Third World countries came to Basel precisely to prevent that. Because of the principle of consensus applied in international decisions, they were only able to agree on a common denominator represented by the highly developed countries (the United States, Great Britain, the FRG, the USSR, Japan, etc.).

The main achievement of the Basel Convention is a duty to report waste exports. Exporters must submit a written import approval (prior informed consent) from the respective importing country before the wastes can depart.

This reporting system, to be sure, involves only a transfer of norms already in effect in the United States and Western Europe and will not do much to restrict the current and future traffic in wastes.

As of 30 July 1990, the Basel Convention had been ratified by only five countries. The convention will go into effect on the 90th day after the 20th ratification and the first meeting of the signatory states will be held no later than 1 year after it goes into effect. So some more time will pass before this weak instrument goes into

effect. (An up-to-date list of the signatures and ratifications [in English], memo from Pierre Portas, coordinator of the interim secretariat of the Basel Convention, to Greenpeace International, 18 July 1990; on the Basel Convention most recently: Andreas Bernstorff, "The Basel Convention—Legalization of the Trade in Wastes," in: Elvira Spill und Erdmann Wingert, *Brennpunkt Muell* [Focal Point Wastes], Hamburg, April 1990, Sternbuch Verlag, pp 113-20).

Poland has signed the Basel Convention but has not yet ratified it. But there is scarcely any reason to hope that this convention will help to stem the flood of wastes now plaguing Poland.

### The European Community (EC)

The full extent of the export of waste to Poland is unknown. What is certain, however, is that most of the wastes that reach Poland legally or illegally come from the 12 member states of the EC.

Since the EC is the main producer of wastes in this region of the world, it is important to investigate the efforts of the EC to gain control over its borders in this connection.

With the exception of Italy, the EC member states have no authority to forbid any waste exports to Poland as long as the duty to report such exports is observed and they have the approval of the importing country.

This duty to inform, which is codified in Guideline 84/631/EEC after the changes through 85/469/EEC, 86/121/EEC, 86/279/EEC and 87/112/EEC, is a somewhat moderated form of the advance approval obligation of the Basel Convention. According to the Basel Convention, the importing country must have given its import approval before the export can be carried out, whereas under the EC guideline approval is assumed if the exporter does not receive a negative response within 20 days after the notification.

It must also be noted that many dangerous and broad waste flows are not considered in this guideline, including, for example: radioactive wastes, nonferrous metal wastes, chlorinated solvents, organic solvents, and materials contaminated with dioxin, as well as combustion residues, sewage sludge, household wastes, etc.

Almost all of the scandals involving waste exports took place after this EC guideline went into effect. It is obviously unsatisfactory and ineffective.

### New obligations of the EC

The EC Commission is currently drafting a regulation to modify the existing EC guideline (84/631/EEC) (EUROPEAN REPORT, Brussels, 18 September 1990) on the transport of special wastes. A regulation differs from a guideline in that it is binding for the member states even without their having to be included in the legislation of the individual states. In the new regulation, the Commission is

obliged to adopt not only the provisions and definitions of the Basel Convention but also those of the Lome IV Convention.

### The Convention of Lome (Lome IV)

The Lome VI Convention is the most important milestone and the most remarkable example on the way to the curbing of international waste deals. Sixty eight African, Caribbean, and Pacific countries, the ACP countries, are now legally protected against the importation of special wastes, including nuclear wastes, on the basis of a trade and aid agreement between the ACP states and the EC that was signed on 15 December 1989.

Article 39 of the Lome IV Treaty contains the world's most comprehensive ban on exports of special wastes. After this treaty with validity for 10 years goes into effect, the EC will not be allowed to import any special wastes at all, including nuclear wastes, into the 68 ACP countries. In addition, the ACP countries have agreed in this treaty that the importation of special wastes, including nuclear wastes from all countries of the world is to be forbidden.

### EC Contradictions

In June of this year, the EC Environmental Council, which is made up of the environmental ministers of the 12 member states, resolved that the internal EC market ought to be self-sufficient in the area of waste disposal. They called on the member states to pursue the same objective. They also adopted the "proximity principle," under which the disposal of wastes should be undertaken as near as possible to the place where they arise (session document, CONC/ENV/90/4, Environmental Council, Luxembourg, 7 July 1990).

Despite these measures, the EC has not made any attempt to achieve a total ban on waste exports from the EC. This contradiction becomes even clearer when we bear in mind that on the other hand the EC has approved the prohibition of imports into 68 other economically weak countries.

The main reason for this inconsistency is that the EC is vacillating between an unwarranted concern about free trade and justifiable concern about the environment. The EC still views wastes as a kind of "commodity" or (the treatment of wastes) as a "service" that can and should be freely traded. Despite the fact that toxic wastes have no social value at all but instead mean a serious political and ecological responsibility for the member states, the EC is still insisting that the freedom to handle these substances is of the greatest importance.

Greenpeace argues that wastes cannot be viewed as an "economic commodity"; even someone who does this and who with concern about free trade assesses its importance to be higher than the value of a healthy environment is absolutely on the wrong path, especially since the EC is not issuing any binding regulations on the reduction of wastes to bring about a drastic decline in the production of wastes within the Community. Since the avoidance of wastes is a strategy that by definition must be applied at the source of the production of wastes (waste reduction at the source), it is therefore absolutely necessary to exclude wastes from the category of goods and services.

### Other possibilities

Naturally not just the EC countries are involved in waste exports to Poland and the EC is also not the only forum in which one can oppose the trade in wastes. In addition to the attempt to forbid the export of wastes to certain regions of the world at the national level, as, for example, the federal government in Bonn has announced repeatedly, international legal and political institutions in Scandinavia and in other regions, such as the Helsinki Convention, the Nordic Council, the European Free Trade Association (EFTA) and the Conference on Security and Cooperation in Europe (CSCE) ought to tackle this problem and seek legally binding instruments which provide for "self-sufficiency" in the area of the handling of wastes.

### Conclusions

Experience has shown that attempts to "control" the trade in wastes by allowing "recycling loopholes" have failed miserably. In the short term, this problem can be solved only through a total export ban for the waste producers and strict penalties for all those who do not adhere to this ban. In the longer term, but beginning immediately, the large producers of wastes must achieve dramatic progress in the introduction of waste avoidance strategies and clean production processes through economic measures and thereby make sure that toxic wastes do not arise at all.

It is for this reason that Greenpeace International is urgently recommending that the EC, other multinational institutions, and individual states adopt the "principle of self-sufficiency" and make it enforceable on the basis of laws. It is time for the highly industrialized countries to respect the demand of all regions of this world that they develop free from the constant threat of toxic waste imports.

The Western industrial nations must clearly take responsibility for ending this horror of wastes that is documented in this report. Poland has enough environmental problems of its own and cannot take on those of the Western countries as well. If the appropriate legal measures are taken, there is hope that the balance of toxic waste imports into Poland can be a sad but closed chapter in the history of the waste trade, rather than the prelude to a long and agonizing nightmare.

### The Recycling Legend

Lately waste dealers have been packaging their deals as recycling, reutilization or "development projects." Many waste brokers try to tailor their projects to the special needs of the localities where they want to get rid of their wastes. Thus, in countries with few sources of energy, they offer the incineration of wastes for the production of power.

Even when the proposed "recycling" projects include some form of legitimate reutilization, this perhaps excusable trade opens up a serious loophole through which

large quantities of toxic substances are allowed to cross borders and to endanger the health and environment in the receiving countries.

When, as is almost always the case, there are no measures taken for the reexport of the residues after processing, the export of wastes to foreign countries for the purpose of recycling must be seen as the export of wastes with the objective of final storage.

Nothing can be reutilized completely. The residues remain in the receiving area and often they represent the lion's share of the imported wastes. The problems resulting from trade across borders with dangerous wastes for recycling purposes are outlined as follows:

#### 1. Toxic residues:

Very often the residues after reutilization are dangerous and quantitatively significant. Most of the regained substances do not represent the most toxic elements of the waste flow. Wastes from the steel industry, for example, from which zinc is recovered, often contain dangerous amounts of other toxic heavy metals and dioxins, which remain in the receiving areas.

#### 2. Dirty industries:

Wastes are moved around for economic reasons. Cheap labor, low capital and insurance costs, and lax liability regulations are frequently the cause of the traffic from north to south or from west to east. These price differentials are the expression of less stringent labor protection and environmental regulations. Put another way, wastes are processed in poorer countries, where industry is allowed to be dirtier. Dirty industries are thereby allowed to exploit working people and nature more intensively because of the lack of foreign exchange.

#### 3. Keeping loopholes open:

The allowance of trade with recycling materials and "secondary raw materials" opens up a huge loophole through which waste dealers can channel a broad range of toxic substances, such as "fertilizers," "supplementary building materials," "road surfaces," etc. This results in an enormous control problem. The burden of taking precautions and the burden of proof for the possible toxicity of materials lie with the government in the respective receiving country. An effective application of the existing laws has recently been proven impossible even in the wealthy countries of the EC and in the United States. In the last two years, there have repeatedly been scandals involving the EC legislation on waste exports. The EC allows the export of nonferrous metals for recycling without an approval procedure. This led to the illegal (under Brazilian law) importation of strongly contaminated metal wastes into Brazil. After a preliminary investigation, it turned out that the recycling firm in Brazil had a very bad reputation—on the basis of numerous environmental scandals as well as a number of serious illnesses and accidents of its workers, which even led to deaths. The wastes were not sent back until

environmental protection groups brought these abuses to the attention of the local authorities (REUTERS, 27-28 June 1989 and 3-7 July 1989; XINHUA, 28 June and 3 July 1989). The recycling pretext is a very common justification for legal as well as completely deceptive waste handling projects. The list of export projects—including to Poland—shows diverse insidious waste deals, in which it was merely asserted that they involved a recycling project or in which there actually was some form or other of recycling.

#### **4. Absolution for the waste producers:**

The transport of wastes across borders for purposes of recycling can be used as an excuse to free the waste producers from their responsibility for the future consequences of their toxic substances. When toxic wastes are legally classified as "secondary raw materials" or as substances intended for "recycling or reprocessing industries," then all too often (as, for example, in the Basel Convention) they are excluded from the provisions that are supposed to guarantee the existence of "appropriate technical capacities and facilities (Basel Convention on the Cross-Border Transport and Disposal of Special Wastes, Article 4, Paragraph 9). Even when the waste producer is subject to strict liability regulations, it can hardly be guaranteed that a judgment can be enforced against a foreign producer.

#### **5. Transport risks:**

The transportation of such substances endangers the longshoremen and seamen, and the workers in the waste processing facilities, as well as the environment of the transit areas and at the place of the final storage of the residues. In the latest scandal concerning the metal wastes in Brazil, 20 longshoremen who had loaded the material on board had to go to the hospital ("Brazilian Longshoremen Get Sick Through Chemicals," REUTERS, 7 July 1989).

#### **6. Negative incentives for waste avoidance:**

In the Basel Convention, it is stated, and this is the unanimous opinion, that we "must be sure that the transport of dangerous and other wastes across borders is reduced to a minimum that allows an environmentally safe and efficient handling of these wastes." In addition, the Basel Convention has obligated the signatory states to "make sure that the production of toxic and other wastes is reduced to a minimum..." (Basel Convention, Article 4, Paragraph 2d; Article 4, Paragraph 2a).

Waste exports for recycling purposes are often only an attempt to avoid the responsibility for curbing the production of wastes at the source. The rejection of responsibility so as to increase profits results in the discouragement of all efforts to introduce technologies that protect the environment or produce less waste.

### **USSR Foreign Minister Shevardnadze Urges Moves To Save Black Sea**

*PM1612203590 Moscow TRUD in Russian  
16 Dec 90 p 3*

[Ye. Shulyukin report: "The Black Sea Must Be Saved. USSR Foreign Minister E.A. Shevardnadze Answers TRUD Correspondent's Questions"]

[Text] Yesterday at the end of his visit to Turkey, USSR Foreign Minister E.A. Shevardnadze held a brief news conference in the aircraft on which the Soviet delegation was returning to Moscow. "The visit to Turkey was full, not only in terms of its program, but—and this is the main thing—in terms of its political substance," the minister said. "Our mutual view of the prospects for Soviet-Turkish relations is optimistic in all aspects, whether it be the spheres of political, economic, cultural, or other cooperation."

Your correspondent asked E.A. Shevardnadze to talk about the project involving the creation of an economic cooperation zone in the Black Sea that was discussed during his talks with the Turkish leadership.

"We talked about the need for this. There is no concrete plan as yet. But it is a question of a wide-ranging program. The intention is to set up something like an economic association. Cooperation could encompass various spheres, for instance, transport links, etc. Representatives of the four countries are to meet shortly to discuss these problems. Our republics—Russia, the Ukraine, Georgia, and Moldova—could be involved in this work."

I want to talk about another important problem that was broached during my visit. I am talking about the ecological situation in the Black Sea. It is time to tackle this in earnest. The littoral countries—Romania and Bulgaria, along with Yugoslavia, Czechoslovakia, and Austria—could have a say in this.

I must be blunt and say that the Black Sea is dying. We must not allow the fate of the Aral Sea to befall it. Urgent steps must be taken for its recovery. Major scientific studies and capital investments will be required. We must save the Black Sea by joint efforts.

In publishing these statements by the minister, we think that millions of Soviet people living or vacationing on the Black Sea coast will be interested to know that the ecological problem of the Black Sea is being discussed at high international level and that wide-ranging measures are planned to save it.

### **Indonesian Minister Speaks on EC Tropical Timber Boycott**

*BK2412105190 Jakarta ANTARA in English 0916 GMT  
24 Dec 90*

[Text] Bogor (West Java), Dec 24 (OANA-ANTARA)—Forestry Minister Hasrul Harahap had

pointed out that the European Parliament had recently submitted a resolution to boycott timber products from tropical forest countries which they believed were not implementing sustainable forest development.

Although there is still doubt about its political power to put pressure on the respective countries in Europe, the resolution will no doubt influence (European) public opinion, the forestry minister said in a press interview, after a tree-planting ceremony in the framework of the 1990 afforestation drive at Ciomas village, Parung Panjang sub-district in Bogor District, on Sunday [23 December].

The afforestation drive, which was attended by some 500 youths from forestry family circles, was a follow-up of similar activities carried out in December 1989 and July in 1990 on an area of 200 hectares.

These afforestation activities were related to efforts in developing apiculture, so that the planted trees should belong to varieties able to produce bee food, such as kapok, "kaliandra", jambu air, and melinjo trees.

According to Minister Hasrul Harahap, Sarawak in East Malaysia was one of the regions which had been hit by the European Parliament's boycott, because they were of the opinion that Sarawak had failed to conduct sustainable forest development.

For Indonesia in particular, critics came from non-governmental organizations which wanted Indonesia to stop natural forest felling completely. However, Indonesia has explained that the idea was unacceptable, because we only fell commercial timber trees, using the "selected felling system" and replant the areas where trees have been felled, he said, adding that felling is allowed only in production forests, and forbidding it completely in protected forests and natural conservations.

According to the minister, forest development in Indonesia had indeed still many shortcomings, but efforts had been carried out untiringly for further improvement through the support of all parties, particularly from forest concessionaires who had already obtained substantial profits from forest exploitation.



## REGIONAL AFFAIRS

**Eastern African Nations Form Environmental Coordination Body**

91WN0154A Nairobi DAILY NATION in English  
13 Oct 90 p 20

[Article by Opala Kennethy: "The Desert Comes Closer by 40 kms Every Year"]

[Text] The pace at which the desert is approaching this region portends a stupendous crisis if a serious reappraisal of the situation is not immediately followed by specific counter-offensive measures.

With an estimated desertification rate of 18-40 kilometres per year, countries in the Eastern Africa sub-region would find themselves in a desert by the turn of the century.

In Kenya, if the current depletion rate of forests is not curbed, the country will not have any indigenous forest by the year 2000.

Serious drought that has stricken Eastern African countries has severely affected their economic performances in the past 2 decades. The countries have also suffered from famine and environmental degradation.

The six (Uganda, Djibouti, Sudan, Ethiopia, Somalia and Kenya) can recall the severe drought of 1983 and 1984 which brought untold sufferings and killed thousands in Ethiopia and Sudan.

This natural disaster, which also affected another 21 countries of Africa, had negative effects on food supply, agricultural production, water availability, livestock and ecology.

Economies of the Eastern African countries which were already suffering the effects of the oil crisis of the early 1970s became totally lopsided.

A World Bank report published in the early 1980s had the following to say about the region:

"... for the Eastern African countries, and for the majority of its population, the record is given and is no exaggeration to talk of crisis. Slow overall economic growth, sluggish agricultural performance, coupled with rapid rates of population increase and fiscal crisis—these are dramatic indicators of trouble."

Concerned with the extent and gravity of the drought, the six states decided to form a common body to coordinate their efforts to combat drought and desertification.

The Assembly of heads of State and Government met in Djibouti in January 1986 and launched the Inter-governmental Authority on Drought and Desertification (IGADD).

IGADD is an autonomous regional body concerned with coordinating the efforts of member states to ensure that there is food security, to combat desertification and to implement programmes aimed at harmonising environment conservation and economic development—in other words, sustainable development.

Essentially, in forming IGADD, the Eastern African countries must have realised that environmental degradation problems could not be dealt with by individual countries.

The problems transcend national boundaries, resulting in transnational crises that are beyond the capacities of individual governments.

Irrespective of their ideological differences, and with a firm political will, the Heads of States and Governments agreed to come together on a mutual basis and set up IGADD. They charged with responsibility for combating the encroaching desert, protecting the environment and fostering development in the region.

With its headquarters in Djibouti and serving the sub-region with an area of over 5 million square kilometres, of which 80 percent is arid or semi-arid IGADD has the following objectives:

- to coordinate and supplement the efforts of member states to combat the effects of drought and related natural disasters, and to assist in their development efforts;
- to create an awareness in the international community of the very severe problems caused by drought and related disasters;
- to appeal for and mobilise resources necessary to implement programmes set up by member states;
- to assist member states in setting up guidelines and action programmes for drought and desertification, as well as following up the implementation of drought-related activities;
- to assist member states and existing bodies in the sub-region in securing funds for their individual programmes.

In his remarks during the first session of the meeting of the Heads of States and Governments held in Djibouti in 1986, Kenya's President Moi told other leaders: "The process of desertification is, therefore, with us, and our sub-region is increasingly becoming part of the Sahel belt."

Noting that in its 3 years of existence the authority had done nothing tangible, President Moi, who chaired this year's meeting in Addis Ababa, called for the implementation of the policies.

He called upon the body to concentrate more on action-oriented projects rather than on expending its energies and resources on feasibility studies and consultancies.

Whereas consultancies and feasibility studies cannot be dispensed with, they should be translated into appropriate action plans which, on the other hand should be translated into actual work projects and implemented programmes.

A look at the objectives and activities of the body gives the impression that most of the resources are channeled to combating drought and desertification. The effects and causes of the natural hazards are not sufficiently addressed.

The body appreciates that environmental issues are a global subject in need of a global solution. But "we need not hide that conservation has largely failed in our developing society," the current executive secretary of IGADD, Dr. Makonnen Kebret, observed recently.

The high-sounding resolutions and strategies set by the body have generally failed to address the problems as experienced by the individual land users in the sub-region.

Thus the body has failed to appreciate the need for individual incentives for the population to manage its own environment. "Conservation without appeal, incentives and profits to the individual is quickly becoming a non-starter," Dr. Kebret said. And this is what is of immediate benefit to the common man who is expected to utilise his land in a manner not to cause desertification.

IGADD's immediate agenda should be to address the effects, which in this vicious circle end up as the causes of drought and desertification.

Experience has shown that with the onset of hunger and starvation, the population is forced to over-utilise the available resources for subsistence.

Rural families depend on land for food, depend on forests and trees for fuelwood, building materials and many other needs. Generally, the rural population depend on forests and trees for income and shelter. It is, therefore, poverty which forces them to intensify pressure on land.

IGADD should aim at meeting the essential needs of the sub-region's rapidly expanding population. But this is only possible if the population is stabilised at a level conducive to economic growth. These needs include provision of food security, satisfaction of energy needs which do not degrade the environment, and guaranteeing the basics of housing, sanitation, and health care.

In Kenya, the causes of desertification are made up of an variety of factors.

Excessive demographic pressure which has had an impact on forests and trees, and the settling and expansion of cultivation of marginal lands by subsistence farmers have led to environmental degradation.

IGADD has lined up 17 economic and environment related projects for this country. But all these projects, seemingly, are earmarked for the arid and semi-arid areas such as North-Eastern Province.

It is necessary that the areas which do not lie in the ASAL (arid and semi-arid lands) should also be addressed since desertification is not a static phenomenon. We should combat the encroaching desert by protecting the areas at risk.

The above need to be addressed in the next IGADD meeting scheduled to be held in Nairobi from 15 to 19 October.

For the past 10 months, Nairobi has emerged as the centre of the hottest issue on the international agenda—the environment and its sustenance.

The 1-month long First Substantive Session of the United National Conference on Environment and Development was held in August at the headquarters of the United Nations Environment Programme (UNEP).

The UNEP Governing Council also held a 7-day conference in July/August.

Now IGADD has organised a forum on environmental protection and development of sub-regional strategy to combat desertification in the member states. This meeting is scheduled to be held at Kenyatta International Conference Centre from 15-19 October.

The primary purpose of the forum is to provide an opportunity for policy and decision-makers in the sub-region to come together, exchange information and formulate proposals for combating desertification.

The themes to be addressed by the forum will include energy programme, erosion control, biodiversity, range-land management, water resources, oil pollution, environment assessment research and education, and the escalating refugee problem.

## BOTSWANA

### Government Invites Greenpeace To Inspect Okavango Project

*MB2112160490 Johannesburg SAPA in English  
1526 GMT 21 Dec 90*

[Text] Johannesburg Dec 21 SAPA—Following international concern, the Botswana Government has invited the international environmental organisation Greenpeace to assess improvements on the river systems downstream of the Okavango River Delta, the SABC's [South African Broadcasting Corporation] Africa Desk reports.

The Botswana Government aimed to let Greenpeace get first-hand information about a project aimed at diverting water from the delta to feed drought areas and

some mining operations. Sites would be visited for the evaluation of the project's environmental impact.

It said it was confident the project represented an efficient management of water resources and that environmental impact on the delta was negligible.

The Mineral Resources and Water Affairs Ministry said the objective of the project was to improve delta outflows, improve communities' livestock and wildlife, which are dependent on certain rivers for their livelihood.

## SOUTH AFRICA

### African National Congress Spells Out Environment Policy

91WN0153C Johannesburg THE WEEKLY MAIL  
in English 16-22 Nov 90 pp 25-26

[Article by Max Sisulu and Stan Sangweni: "Develop but Don't Damage Environment"]

[Text] Mounting public concern has put the environment at the top of the political agenda throughout the world.

Some gains have been made on certain fronts of the environmental spectrum; for one thing environmental awareness has grown substantially on the part of governments, non-governmental organisations (NGOs) and the public. However, unease persists because the state of the environment is in general worse off than 20 years ago when governments and NGOs met in Stockholm.

The African National Congress' [ANC] position on the environment emphasises three key elements:

- Protection of the environment (fauna, flora, rare species, natural resources)
- Construction of the environment (engineering works to enhance environment and use of natural resources)
- Management of the environment (environmental pollution problems caused by production, environmental damage caused by construction and development activities).

The ANC is committed to conservation and rational use of our natural resources for the benefit of the present and future generations.

Our position is that we, the present generation, have a responsibility which we owe to future generations of South Africans to preserve the environment for them so that they will find it in a viable and usable form.

It is also the ANC's position that in planning and implementing economic growth programmes the correct

strategy is to maintain a healthy balance between economic and social benefits on one hand, and environmental protection on the other. In policy terms this means sustainable development and growth with environmental protection.

The ANC also holds the view that it is impossible, in the political sense and in the socio-economic context, to pursue a rational environment protection policy under the apartheid political system or any similar totalitarian regime.

Apartheid is incompatible with conservation of the environment because of its principles, which emphasise manipulation of racial groups which inevitably leads to reckless plundering of natural resources. The widespread land degradation in the homelands (soil erosion, overgrazing, deforestation and desertification) where millions are crammed beyond the carrying capacity of these marginal lands, constitutes such inevitable environmentally destructive consequences of apartheid.

Such environmental destruction cannot be rehabilitated by any land-use management measures without first dismantling apartheid.

The ANC believes environment reconstruction and management, the two sides of environment protection, constitute a major task of a free democratic post-apartheid South Africa. An environmentally conscious society can only exist in such a political environment.

In designing a strategy for achieving a sound environmental management policy that is consistent with growth and development the ANC would adopt the following principles when it comes to play a role in government:

- A careful balance between the needs of current and future generations will be made in the exploitation of non-renewable natural resources. In this respect, the exploiters of natural resources will be required to develop new technologies that use less of such resources and search for alternative resources.
- Subject to upper limits beyond which closure is the solution for avoiding environmental disaster, an ANC government would seek to impose deterrent surcharges for those concerns whose activities pollute the environment—asbestos mining operations, for instance. Such surcharges (or rent) would be used to compensate communities and institutions adversely affected by such actions and to pay for rehabilitation. This is the application of the principle of polluter must pay.
- The ANC would put in place comprehensive legislation on environmental management and protection. Such legislation would seek to address and make provision for pertinent environmental issues including: environmental impact assessments; resource management and protection; environmental



monitoring; prevention and elimination of environmental pollution and damage to ecosystems.

Among the problems of industrial development and the environment are that industry provides great impetus and drive towards growth and development of the country. Yet it is also a source for some of the most serious environmental problems in the land, especially pollution. Atmospheric pollution, perhaps among the highest in the world, is caused by the enormous discharges of vapours and gases from processes like oil refining (sulphur dioxide) and thermal electricity generation.

Other special environmental pollution problems affecting the urban areas include problems of disposal of solid waste, industrial noise and smog—the latter being peculiar to the townships where people rely on coal and kerosine paraffin for their domestic fuel energy.

ANC believes the issue of pollution is a complex one, requiring serious comprehensive measures (laws, regulations, structures, public education and awareness building) to be put in place for environmental management and control of industrial pollution.

In developing its policy on environmental pollution the ANC will be guided by the principle of seeking appropriate means of introducing environmental management into industrial development so that technological innovations address also sources of pollution, its prevention and control. To reflect this concern with industrial pollution, various incentives will be explored to reward industrialists who develop environmentally sound technologies.

The ANC's position is that the issue of air pollution in the townships is rooted in apartheid and its inevitable corollary, black poverty, which creates townships where there is no option for pollution-free domestic fuel other than the reliance on coal-burning stoves. Pollution in the black townships has therefore first to be tackled through dismantling apartheid to create necessary conditions for uprooting poverty.

On the issue of toxic wastes, the ANC will associate itself with international initiatives to regulate the disposal, dumping, recycling and transboundary movement of toxic wastes. In this regard, an ANC government would seek to be a signatory to the Basel (Switzerland) Convention for Control of Transboundary Movements of Hazardous Wastes and Their Disposal.

Overuse of pesticides and herbicides, coupled with lack of control on their chemical content, has polluted water, and has contributed to damage of the ecology, besides creating hazards for human health and animals, as reported in the Natal Midlands in recent months.

Furthermore, intensive use of fertilisers and pesticides particularly on white owned farms is likely to have polluted ground water with nitrate accumulation. In developed countries like North America and West

Europe which have high applications of chemical fertilisers like in South Africa, loss of soil productivity has been detected.

The increased pressure on land for human settlement and for agricultural production is likely to limit land availability for wildlife conservation and its use for major economic activities like tourism.

Conflicts of these land-use requirements lead to such aberrations as poaching. Yet, in many ecological zones in South Africa, wildlife management and conservation offers the only ideal balance between human economic activity through tourism and environmental conservation.

There is a need, therefore, to establish an optimal balance between devoting such lands to wildlife and meeting the requirements for human settlement and sustenance.

The ANC views wildlife as a national resource and, accordingly, its policy will put emphasis in state assistance to communities in the management of wildlife resources, particularly in rural areas where wildlife utilisation on a sustainable basis represents a significant and viable land-use option. The ANC is in agreement with the policy approach of some of the neighbouring states which advocates full community participation in management of wildlife resources and the economic benefits flowing from this resource.

The ANC will therefore explore to the fullest the various modalities for rural development projects in these regions based on controlled rational harvesting of wildlife for supply of raw materials (ivory, skins) to be fabricated into finished products in rural-cottage-cooperative industries.

South Africa's marine resources are enormous, surrounded as we are by two major oceans (the Indian and the Atlantic) with extensive fish resources. But, like in many parts of Africa, the high pollution levels and degradation of coastal ecosystems threaten the life-support capacities of the oceans and undermine their role in the food chain.

The problem may be expected to be particularly acute around the highly populated and industrialised coastal zones. More than three-quarters of marine pollution is estimated to come from land-based sources, via rivers and direct discharges. The rest comes from shipping, dumping and oil production. The environmental challenge here is to control and decrease marine pollution and establish regimes of environmental management of the oceans and coastal regions around South Africa.

A post-apartheid government would need to institute policies and measures aimed at preventing practices harmful to marine ecosystems. Such policies would include:

—Control of the discharge of industrial effluents and sewage

- Prohibition of dumping wastes, including hazardous and radioactive materials as well as disposal of hazardous residues and wastes from ships
- Regulations regarding spills from tankers and off-shore platforms
- Promotion of land-based technology for disposal of hazardous wastes.

### **Pan-Africanist Congress Links Environment Issues to Land Issues**

91WN0153B Johannesburg *THE WEEKLY MAIL*  
in English 16-22 Nov 90 p 30

[Article by Barney Desai: "Destruction of Our Land Is the Legacy of Dispossession"]

[Text] It should be recognised that the environment is a people's concern. However, this must be seen within the context of the inherent contradictions of an apartheid society.

The discriminatory mechanisms at work within South Africa have resulted in a deeply divided society, with enormous differences in the lifestyles of blacks and whites.

These differences are demonstrated not only by the sharp contrasts in quality of life, but also by the appalling statistics on unemployment, health, poverty, illiteracy and the homeless. Thus, for the majority of black South Africans, whose lives and aspirations are dictated by the struggle for survival, environmental considerations are regarded with indifference or hostility.

There is a fundamental difference in the environmental perceptions and attitudes of blacks and whites—a dichotomy which is demonstrated by the fact that, for many whites, environmental issues are based on aesthetics, while for blacks, the issue of basic needs is the central issue.

The impact of the land question is also important. The divisive legacy of conquest and dispossession, a process begun with white settlement in 1652, has continued to the present in the form of forced removals, Group Areas harassment and the existence of the homelands. Not only has the land dispensation resulted in increased spiritual and physical alienation of blacks from the environment, it has also had grave environmental implications as enforced overpopulation in the homelands has resulted in overstocking, overgrazing, overcultivation and appalling rates of soil erosion.

Bearing in mind the foregoing, the PAC [Pan-Africanist Congress] recognises that:

- The environmental issue is an issue of survival and therefore an environmental policy should be an integral part of the organisation's overall policy.

- People are an integral part of the environment and it is therefore logical to incorporate the environment as one aspect of a human economic policy.

Any environmental policy adopted, should respond to relevant sociopolitical factors, i.e. it should incorporate the human dimension of environmental concern and by so doing, be socially-responsive.

- Due to the slavish implementation of the tenets of apartheid, black South Africans face a socio-economic backlog and that, in accommodating neglected basic needs such as housing, health care and education, there may well be adverse environmental effects. Attention will therefore have to be directed at finding an appropriate balance between environmental planning and the provision of basic needs.

- If mass environmental literacy is to be achieved, political literacy and the democratisation of society must be seen as crucial elements of an overall environmental strategy.

- The inequitable land dispensation is an insuperable obstacle in the establishment of mass environmental awareness. In ending the spiritual and physical estrangement of black South Africans from their environment, the land question will have to be addressed.

- Certain preconditions are necessary for the successful implementation of future environmental strategies. These pre-conditions may be summarised as the destruction of apartheid; the enhancement of quality of life and the democratisation of society. There must be no impediment to the right to self-determination.

Based on the above-mentioned factors, it is proposed that the PAC's environmental policy include the following:

Firstly, that the environmental policy of the PAC will adopt an holistic approach, i.e. one which takes into account relevant social, historical, economic, political, and environmental, factors.

Secondly, that the PAC commits itself to the conservation of ecosystems and biotic diversity.

Thirdly, that the PAC accepts the concept of sustainable development, i.e. the wise and non-destructive use of resources, with the understanding that a prerequisite for sustainability is that disparities in social, economic and political development be ended.

**Toxic Waste**—Examples of inaction by the present government are horrifying in the extreme. High doses of mercury can destroy the central nervous system and cause serious birth defects. Water tested in the Umweni River in Natal revealed mercury contamination to be the highest ever recorded in the world. This pollution was caused by Thor Chemicals which was permitted by the government to import waste from the United States of America, for recycling. Now, belatedly, following a

public outcry by chemical workers and environmental groups, Thor has been shut down.

The PAC wishes to make clear its opposition to the dumping of hazardous waste in Africa and supports international efforts towards a total ban of such trade. It is the study of industrialised nations to safely dispose of their own waste. With regard to the industrial pollution of our rivers, substantial fines should be imposed on enterprises guilty of such malpractices. In addition, they should be held accountable for the cleaning up of such pollution.

**Air Pollution**—Coal-fired power stations and synthetic fuel refineries have caused substantial parts of the Transvaal to become heavily polluted. In the Eastern Transvaal 57 tons of sulphur dioxide per square km belches into the air every year from power stations, industry and the giant Sasol plant.

Air contamination in the Eastern Transvaal and in the Vaal Triangle has been blamed for the high incidence of ear, nose and throat ailments, as well as serious chest diseases. The two million residents of Soweto are under a perpetual haze of carbon dioxide because of air pollution caused by coal stoves.

As a matter of urgency, present and future research should emphasise simple and appropriate technology. This should include the use of alternative energy sources such as solar energy.

With majority rule, Azania will be well placed to forge close links with sub-tropical Africa with a view to polling resources through the extensive installation of dams for generating power for both industrial and domestic use in ways that are both cheap and nondestructive of the environment of all of Southern Africa.

In addition, all industrial enterprises, state and private, must be given a specific time to take measures to minimise the emission of toxic gases into the atmosphere.

It is recommended that:

Firstly, the PAC accepts the necessity for the adoption of an environmental code of ethics in a new Azanian constitution. This could be done along the lines of the Namibian constitution, which commits the state to adopting policies aimed at ensuring that the ecosystems, essential ecological processes and biological diversity are maintained.

Secondly, that, similar to the situation in India, the legitimate concern and interest of the public regarding environmental matters is recognised. The courts should be made aware that they have a duty to protect the public and the environment, and that this should take precedence over legal technicalities.

Thirdly, that an environmental ombudsman, independent of the state and the private sector, should be appointed to mediate in environmental issues.

It is further recommended that the organisation takes the following steps to ensure that its membership becomes sensitised to environmental issues:

Firstly, an environmental committee could be established—this committee could consider various strategies to institute environmental action; it could liaise with various environmental organisations; it could consider practical ways in which to ensure a balance between development on the one hand and the need to consider the environment on the other.

Secondly, trade union affiliates could consider questions of industrial health and occupational safety. Trade unions are in the ideal position of being able to sensitise their members with regard to environmental issues because practical action in these spheres will result in concrete benefits to workers.

Action taken in the sphere of environmental health, for example, steps taken to minimise the dangers of working with hazardous materials such as asbestos, will, at the same time, ensure the right of workers to work in a safe environment.

Thirdly, civic bodies and community organisations could undertake issues identified as relevant by local communities. In this way, local communities are enabled to undertake action which, for example, allows them to address the environmental poverty of their environment in a practical manner.

Fourthly, teacher and student bodies could undertake community-based environmental education programmes which have as their focus, local environmental problems. Such organisations are also ideally placed to undertake environmentally-based literacy programmes.

### **Ecological Damage Caused by Mining**

91WN0153A Johannesburg *THE WEEKLY MAIL*  
in English 16-22 Nov 90 pp 25-26

[Article by Eddie Koch]

[Text] Acid water as sour as vinegar seeps into rivers used for drinking and irrigation. Spontaneous fires ignite in disused collieries and burn for years underground. Heaps of deadly arsenic dust are dumped next to streams and rural villages. Rare dune forests are stripmined for titanium ore. Ugly quarries and gullies scar the slopes of mountains across the country...

The 1,000-odd mines and quarries that dot the South African landscape, and form the backbone of the country's economy, have often been criticised for promoting repressive labour practices and maintaining low standards of health and safety. Recently another complaint has been added to the litany of maladies associated with the industry: the damage that mines have caused to our air, water and earth.

"Excavating minerals always entails environmental risks. It involves blasting, digging and hauling thousands

of tons of ore to the surface, then grinding it to a fine powder and washing out the metals with harsh substances like cyanide, mercury and sulphuric acid," says a recent report by the Worldwatch Institute entitled "Apartheid's Environmental Toll."

"South Africa has treated mining like a sacred cow, fearful of disturbing the cash flow. Air and water near mining and smelting operations are hardly monitored, and what little monitoring is done is not reported. In SA the extent of ecological damage from mineral extraction is massive, from poisoned streams to stripmined hill-sides."

How accurate is this assessment by the institute—an international environment monitoring group based in Washington—of the impact that mining has had on this country's ecology?

Examples abound to illustrate that mining practices, past and present, are causing extensive damage to their natural surrounds. But recent developments within the industry—which include commitments, at least at corporate level, by major mining houses to clean up their act—make it difficult to label the industry as a whole as a bogeyman throwing noxious matter into the eyes of all South Africans.

Mining engineers, even though they have varying degrees of loyalty to the industry, agree that the two main ecological problems associated with mining in South Africa are the vast amounts of acid that seep into ground and surface water during the production of gold and coal and extensive arsenic pollution caused by gold mines in the Eastern Transvaal.

Says Fanie Geldenhuys, environmental science manager for the engineering firm Stefan, Robertson and Kirsten: "All gold mining concerns have problems with seepage of acid water. A mineral in the rock is iron sulphide which, when it is oxidised through exposure to air and water, produces a diluted form of sulphuric acid."

Coal-mining belts on the Eastern Transvaal Highveld and in Northern Natal are another source of acid water contamination. Most aquatic life in the Loskop Dam, north of Witbank in the Eastern Transvaal, and the rivers around Vryheid and Dundee in Natal, including the Black Umfolozi, has been killed or seriously depleted by acid leachates from the collieries and the Department of Water Affairs is known to be perturbed by the problem.

"South African coal, gold and base metal mines will have to equip themselves with expertise to manage acid mine water effectively or risk suffering the same fate as some mines in Canada which will have to spend almost a quarter of the entire profits for the next 2 decades on combating this problem," says a statement issued by representatives from SRK and the Department of Water Affairs last month after their conference around the problem.

Toxic pollutants from the mines have led to some dramatic eco-disasters. Earlier this year THE WEEKLY MAIL tested samples of water running off dumps in Crown Mines, an old mining area near Johannesburg, into a stream that flows through Soweto, and found an astonishing cocktail of poisons. The samples included 8 million micrograms of acidic sulphate for every litre of water as well as large amounts of uranium, arsenic and cyanide.

Paul Reynolds, a farmer in the Standerton district, said that neighbouring gold mines had polluted the Waterval River—used to irrigate his arable land—so badly that it has cost him R300,000 in damages over 4 years.

"If I irrigate with 500mm of water from the river I add 7 tons of salt to a hectare of land, he said. "It's like watering your garden with seawater. Plants get scorched and salt crusts on the surface of the ground so that seeds aren't able to come through." Corrosive matter in the water has "chewed up" underground water pipes on Reynolds' lands.

In the mining belt around Barberton a major ecological threat is caused by clouds of arsenic gases released into the air and dumps of arsenic dust left near villages and the banks of rivers.

"The gold-bearing ore in this area as well as in Botswana and Zimbabwe is different to that on the Witwatersrand. It is located in rock with a high content of arsenopyrites," says mining engineer, who asked not to be named. "The classic method of getting the gold out of this rock is to roast it in huge furnaces. This sends volatilised arsenic gases up the stacks and into the air and creates a fine arsenic dust that has to be disposed of. The mines try to sell some of this and treat the rest before they dump it. But it's an extremely dirty process which generates all kinds of problems."

Vegetation around some of the mines has been stripped bare by the arsenic that precipitates from the stacks. Late last year an Anglo American prospecting team left hundreds of tons of waste containing arsenic and toxic cadmium next to a mountain river. One night a storm washed the waste downstream and it killed all the fish in a farmers' dam. Recent newspaper articles claim fish in a dam near Barberton have been blinded by arsenic toxins.

The controversy at St. Lucia, where a foreign-owned mining consortium plans to stripmine dunes in the reserve, generated one of the country's most heated environmental protests. Less well publicised were plans by a South African corporation to start a similar project on the Transkei coast which hosts an indigenous forest.

On the collieries around Witbank in the Eastern Transvaal, at least five underground fires are out of control. One of these is the subject of a R100-million lawsuit. The Blackstone Mining Corporation is suing the Witbank Town Council and the minister of mineral affairs for

flooding the shafts after trying to extinguish the blaze with water and the town's sewerage.

There is a host of less dramatic environmental effects which accumulate to create serious problems. Quarries gouge huge scars into mountain sides. Prospecting teams from the mines leave trenches and gullies which become the sources of soil erosion. Dust blows off dumps and becomes an irritant for people living nearby.

"The problem in essence," says mining engineer and consultant Mike Salamon, "is that current legislation and efforts by the government to control the effects of environmental degradation by the mines is extremely inadequate."

Three main pieces of legislation govern mining operation: The Mines and Works Act, the Water Act and the Environment Conservation Act. All contain clauses that control the ecological impact of the mines. Where penalties are listed, they usually involve small fines.

"Often it is more profitable for a mine to pollute the surrounds and pay a tiny fine than it is for them to clean up behind them," says Salamon. The Conservation Act, passed this year, provides that environment impact studies be conducted and approved by the government before new mining projects can be undertaken. "I have seen some of these studies and, quite frankly, they are a joke," says Salamon. "The Inspectorate of Mines is grossly understaffed and cannot monitor the rehabilitation work that mines are required to do in terms of the studies. Often inspectors are not qualified to evaluate the studies."

Recently, however, major mining corporations have begun to show a sensitivity, at least in their boardrooms, to the ecological consequences of their activities. John Frear, group environment consultant for Genmin, says the company is spending large amounts on rehabilitating old dumps and preventing acid water from leaching out of their slimes dams. The group is concentrating on containing dust that blows off their dumps and is investigating ways to dispose of saline underground water that is pumped out of the shafts.

In the Barberton district, Genmin has pioneered a unique method of using bacteria that grow on slimes dams to erode the sulphides in arsenopyrite ore and expose the gold, making it unnecessary to use the dangerous roasting method. Known as the "biox process," this environment friendly method of extracting gold is being marketed internationally by the corporation.

Says Butch Smuts, ecologist for Anglo American: "Anglo has decided at executive level that no new project will be funded without the environmental side being considered. This year we adopted an integrated environmental approach which requires consultants to be appointed from the word go."

Anglo is also examining acid drainage problems and is spending about R3,500 per hectare to rehabilitate its colliery dumps in Natal and the Eastern Transvaal.

But there are still numerous defects in the system. These stem from weak legal obligations on companies to refrain from damaging activities and an inadequate state machinery to ensure mines toe the line.

Effective penalties must be imposed on companies that are still polluting the environment and a strict statutory framework must regulate the activities of the industry.

Until this happens, the Worldwatch Institute can stand by its claim that 1,000 mines and quarries which "scrape the earth's crust and burrow deep into it" are a major cause of ecological degradation in South Africa.

### **First Waste Recycling Plant To Be Built**

91WN0152A Johannesburg *ENGINEERING NEWS*  
in English 9-15 Nov 90 p 1

[Text] South Africa's first total waste recycling plant is to be built in Randburg.

An agreement was signed last week between the Randburg Municipality and Resource Recycling (Randburg), a newly-formed subsidiary of Bateman Project Holdings, which will provide and operate the facility, as well as manage and operate the landfill site.

The facility incorporates European recycling technologies and will be built at the developer's risk and at no additional cost to ratepayers.

The facility is expected to reduce the municipality's total waste stream by 50

, prolonging the life of the landfill site and reducing waste disposal costs.

The plant is expected to be fully operational by October next year and will create about 100 jobs in the area.

For more details circle No 334 on the enquiry coupon on page 31.

### **Foundation Offers 52 Million Rand for Environment Problems**

MB2812121990 Johannesburg *BUSINESS DAY*  
in English 28 Dec 90 p 2

[Report by Wilson Zwane: "R52m Ploughed Into Environment"]

[Text] The Foundation for Research Development (FRD) is to plough R[and]52m [million] into developing the manpower needed to tackle SA's [South Africa] environmental problems.



Of the projected R52m, R24m will go into research and training, R16.9m will go into priority areas to be designated, while R9.5m and R2m will go into joint ventures with other organisations with similar interests in the SA environment.

The FRD says these funds will come from government, its own coffers and from its partners in joint research ventures.

The organisation is a statutory body established to provide SA with the scientific and technological manpower needed to improve the quality of life of all its citizens.

The FRD has been operational for 20 years through its national programmes. These programmes, it says, are now being phased out to make way for a new series of special and development programmes.

The organisation is active in all areas of natural and applied sciences and technology, with special emphasis on national priority areas that contribute to wealth-creating technologies and sound environmental management.

Outlining its plans in the latest issue of *Environment Focus*, the FRD says the research funding will be spread over the next five years.

"The underlying major cause of SA's environmental problems can be attributed to our explosive population growth which still has to manifest its full impact on our society and our environment.

"The projected growth of our major urban centres has the potential for true disaster. The pressures on education, medical and sanitation services are already overwhelming, not to speak of the major challenge of providing energy, appropriate housing and employment for millions of poverty-stricken people with minimal education standards," it says.

The organisation says if SA's environmental problems such as water pollution, air pollution and soil erosion are neglected and if suitable methods for handling sewage and toxic waste are not found, the environment will deteriorate beyond recovery and will not be able to sustain a vigorous economy.

The priority will, however, always be the development of appropriate manpower.

The FRD adds that in launching its special and development programmes it seeks to sharpen its goals and direction in the field of modern environmental research towards the development of people with appropriate skills.

"We realise that environmental problems are of a very complex nature and cannot be solved by naturalists and ecologists.

"Today physicists, chemists, engineers, agricultural and forestry scientists, mathematical modellers and computer scientists are required to provide the new environmental technology for the future," says the FRD.

#### **Residents To Challenge Validity of Armscor Lease**

*MB3012093690 Johannesburg Domestic Service  
in English 0500 GMT 30 Dec 90*

[Text] Residents of Rooiels and Pringle Bay near False Bay in the western Cape have decided unanimously to tell Armscor [Armaments Corporation of South Africa] subsidiary, SOMCHEM [Expansion unknown], to leave its test site in the Rooiels mountains.

In another development, Rooiels residents have also decided to challenge, in court, the validity of SOMCHEM's lease of the site, and papers will be served on the company early next year.

### **Quebec Hydroelectric Project Assessment Pact Unravelling**

91WN0162A Vancouver THE WEEKEND SUN  
in English 24 Nov 90 p A11

[Text] Ottawa—An agreement in principle between Ottawa and Quebec on a joint environmental assessment of the \$8 billion Great Whale hydroelectric project appears to have unravelled.

David Cliche, a federal official who negotiated the deal with Quebec last June, said Friday he has virtually given up hope that it will ever be ratified.

"Up until last night, we were working on the basis that Quebec would ratify the agreement in principle we negotiated," said Cliche, who is on contract with the Federal Environmental Assessment Review Office.

"The reading I'm making (now) is that it is very, very, very unlikely that they (Quebec) would ratify on the agreement."

At issue is the future of the Great Whale hydroelectric project fiercely opposed by natives and environmentalists.

The project is located in northern Quebec on the Great Whale River, which flows into James Bay. It will flood 5,000 square kilometers of land and generate power for U.S. markets as well as Quebec.

Great Whale is the first part of an even bigger development often referred to as James Bay 2. It will harness five northern rivers, flood about 26,000 square kilometers and cost about \$24 billion over the next decade.

Quebec wants to begin construction of access roads to the Great Whale complex this spring. Natives and environmentalists fear the project will go ahead without a valid public assessment.

A copy of the June agreement in principle shows Ottawa and Quebec agreed to conduct a joint environmental assessment with public hearings.

The agreement says the project is covered by three different environmental assessment procedures: the federal process set up by cabinet order in 1984, and two provincial procedures under the 1975 James Bay agreement.

It sets out a formula for combining the three different processes by setting up review panels including representatives of Ottawa, Quebec and native groups.

This week, Quebec officials expressed surprise that Ottawa planned to participate in the assessment under its 1984 guidelines rather than under the provisions of the 15-year-old James Bay agreement.

Quebec Environment Minister Pierre Paradis said Thursday the 1984 cabinet order is much weaker than

the 1975 James Bay agreement, and said he could no longer sign the agreement in principle.

### **Study Says West Quebec Lakes Hit Hard by Acid Rain**

91WN0160A Ottawa THE OTTAWA CITIZEN  
in English 14 Nov 90 p B5

[Article by George Kalogerakis]

[Text] Acid rain has heavily damaged a quarter of West Quebec's 33,000 lakes, says a Quebec Environment Ministry study made public Tuesday.

The study says that eight out of the 25 fish species found in the region have disappeared from lakes heavily damaged by acid rain.

But Michael Perley, spokesman for the Canadian Coalition on Acid Rain, said smokestack emissions that cause acid rain have dropped and the benefits will be apparent in a few decades.

He said the crackdown by provinces in Eastern Canada is having an effect. And United States legislation will also help.

"The implementation of the law is going ahead," Perley said from his Toronto office. "It is not just sitting there gathering dust on the shelf."

Denyse Gouin, an Environment Ministry spokesman, agrees with Perley. She said acid-causing emissions by Quebec industry have dropped 40 per cent since 1980. The goal is a 55 per-cent drop by 1994.

Acidified lakes—those heavily-damaged—make up one-quarter of the 33,000 lakes in West Quebec. Another 40 per cent are in danger of becoming acidified.

Lake whitefish, walleye, lake trout and other species popular with recreational fishermen are some of the species in trouble, said biologist Serge Tremblay, the study's author.

If acid rain levels remain as they are, some species could be extinct within 10 years, says the report.

The study was done on 74 lakes in the northern parts of the region, near Temiscaming and La Verendrye Park. Tremblay said that area is very sensitive to acid rain because the soil lacks limestone, which helps to neutralize the acid.

Lakes near Ottawa, though they receive more acid rain deposits, are in less danger because limestone is abundant.

**Ottawa Challenging Court Ruling on Rafferty Dam**

91WN0161A Vancouver THE WEEKEND SUN  
in English 24 Nov 90 p A11

[Text] Regina—Federal government lawyers are challenging almost every major reason cited by a Saskatchewan judge for refusing an injunction against work on the Rafferty-Alameda project.

On Friday, Ottawa filed a notice of appeal of Court of Queen's Bench Chief Justice Donald MacPherson's decision last week. The notice lists 10 grounds for the appeal.

It is not known when the case will be heard by the Saskatchewan Court of Appeal.

Ottawa had sought the injunction, saying work on the project violated a Jan 26 agreement between the two governments. That agreement was struck after a Federal Court decision last December ordering an independent panel to review the dams under Ottawa's environmental-assessment guidelines.

Ottawa's first ground of appeal is that Chief Justice MacPherson erred when he ruled injunctions cannot be ordered against the Crown or its agents.

In his Nov 16 decision, Chief Justice MacPherson also ruled that Ottawa did not mount an effective case for the injunction—another point being appealed by federal lawyers.

When Premier Grant Devine ordered work to resume on Oct 11, he said he had struck a new agreement in September with federal Environment Minister Robert de Cotret to do so. De Cotret denied there was a deal, and the two sides filed court affidavits presenting different versions of events surrounding the alleged agreement.

Chief Justice MacPherson did not rule on if such an agreement existed, but found Ottawa failed to mount a convincing case that there was no pact.

Federal lawyers plan to argue the judge was wrong in saying they had to establish there was no agreement.

The notice also takes issue with Chief Justice MacPherson's finding that it appears to be "manifestly unjust" for Ottawa to try to stop the work, as that would violate an agreement with the United States.

The U.S. government has agreed to contribute about \$50 million to the project because it will also provide flood protection to North Dakota.

Federal lawyers also contend Chief Justice MacPherson erred in finding the January agreement is unenforceable because de Cotret did not obtain cabinet approval for it under the Environmental Act.

The \$154 million Rafferty-Alameda project includes two dams that will create a pair of huge reservoirs in the Souris River valley in southeastern Saskatchewan.



### **State Council Issues Decision on Environmental Policy**

*OW1812144890 Beijing XINHUA in English  
1301 GMT 18 Dec 90*

[Text] Beijing, December 18 (XINHUA)—The State Council, China's highest governing body, has issued a decision calling for more effective measures to protect the environment.

The decision covers eight aspects. It urges governments at various levels and all state departments and enterprises to strictly implement China's law on environmental protection.

According to the decision, factories which have poor economic results and cause serious pollution should stop normal production and take remedial measures. Township-run small paper mills, chemical works, printing and dyeing mills and sulphur plants which consume large amounts of energy and discharge pollutants much higher than the state-set standards will be closed down, merged with other plants or switched to other fields of production.

Newly-built or expanded projects should take into consideration environmental protection and energy-efficient technological transformation.

The decision calls on administrations at all levels to engage in comprehensive treatment of pollution and make rational adjustments to the layout of construction projects.

In exploitation of natural resources, the decision says, the principle of "laying equal emphasis on both exploitation and protection should be adhered to. It urges the departments of forestry, water conservancy and agriculture to coordinate their efforts in this regard.

Environmentalists are required to make long-term and annual plans for key research items and increase academic contacts and cooperation with their counterparts in other countries and regions.

### **Committee Meets on Strategy To Control Acid Rain**

*OW1912120490 Beijing XINHUA in English  
1107 GMT 19 Dec 90*

[Text] Beijing, December 19 (XINHUA)—Members of the Environmental Protection Committee under the State Council gathered here yesterday and agreed on a strategy to control acid rain.

Acid rain has caused huge economic losses to agricultural crops and forestry in Guangdong, Sichuan and Guizhou Provinces and Guangxi Zhuang Autonomous Region, according to the results from a research project which was jointly sponsored by the China Environmental Science Research Institute and the Ecological Protection Center of the Chinese Academy of Sciences.

The committee decided to set up a nationwide acid rain monitoring network to further research the problem, PEOPLE'S DAILY reported today.

The network is expected to provide the state with scientific data which can be used to adopt effective measures to control acid rain.

The committee also urged the the State Science and Technology Commission and the State Planning Commission to allocate more funds to research this problem during the Eighth Five-Year Plan period (1991-1995).

State Counselor Song Jian, who is also the director of the Environmental Protection Committee under the State Council, presided over the meeting.

### **State Council Limits Timber Consumption**

*OW2112133590 Beijing XINHUA in English  
1321 GMT 21 Dec 90*

[Text] Beijing, December 21 (XINHUA)—China has limited timber consumption during the next five years to a maximum of 243.6 million cubic meters per year, much lower than the amount of consumption during the past five years, according to the Ministry of Forestry.

In a circular which reached XINHUA today, the State Council stressed that "the new regulation limits annual timber consumption during the next five years and should be strictly implemented."

According to the latest forest survey, China has increased the size of its forest lands and the amount of forest coverage in recent years, but consumption has surpassed the growth rate for a long time.

Therefore, China has set a stringent target for forest consumption based on the forest data and actual consumption demands. The target also detailed commercial, industrial and living timber uses.

### **Decision on Environmental Protection Work**

*OW2512021690 Beijing XINHUA Domestic Service  
in Chinese 2103 GMT 17 Dec 90*

[Text] Beijing, 18 Dec (XINHUA)—Decision of the State Council on Further Strengthening Environmental Protection Work

(5 December 1990)

A basic national policy of China is to protect and improve the production and ecological environment and prevent and control pollution and other public hazards. The country made headway in protecting the environment through protracted efforts. However, there has been a sharp rise in the amount of pollutants discharged to the environment, in addition to the destruction of ecology by human errors in certain regions, with the increase in population and the development of modern industry. As a result, the quality of the environment gradually deteriorated. Hence, to prevent and control

environmental pollution and ecological destruction has become an extremely pressing task at the present. The following decision was especially adopted in order to facilitate a sustained, steady, and balanced growth of the economy; to thoroughly implement the "Environmental Protection Law of the PRC"; and improve the work of environmental protection in the course of reform and opening up.

### **1. Strictly Enforce Environmental Protection Laws and Regulations**

People's governments at different levels and all departments, enterprises, and institutions should strictly implement the "Environmental Protection Law of the PRC" and other laws and regulations on environmental protection. They should adopt effective measures to ensure that laws and regulations are strictly observed and enforced and lawbreakers are punished, and that nobody is allowed to use official powers to bend the law. Environmental protection and supervisory organs should coordinate with the government legislative affairs departments in conducting periodic inspections on enforcement of the environmental protection law so as to promptly handle and rectify the practice of violating environmental protection laws and regulations. In order to improve the legal system on environmental protection, peoples' governments at all levels and environment and other relevant departments should formulate and perfect the rules and regulations on environmental protection within the limits of their duties and authorities.

### **2. Adopt Effective Measures To Prevent and Control Industrial Pollution According to the Law**

People's governments at all levels and the relevant authorities should those order enterprises, which operate at poor economic efficiency, cause serious environmental pollution, and affect the normal life of residents in the vicinity, to stop production and improve operations. Township and town enterprises, especially small paper mills, chemical works, printing and dyeing mills, and sulphur and coke plants which consume large amounts of resources and energy and discharge pollutants to the environment, should be ordered by the competent authorities to improve their operations within a time limit, or to close down, suspend the operations, merge with other plants, or switch to other fields of production. Enterprises which discharge pollutants to sources of drinking water to cities and towns must be ordered to close down or suspend the operations without exception. New construction projects, which may pollute the environment in the protection zones for drinking water sources, ecologically sensitive areas, and natural conservation areas, are prohibited.

Enterprises and institutions, which discharge pollutants to the environment and cause other public hazards, should concentrate their technological transformation projects and operations on eliminating pollution, improving the environment, conserving resources, and

adopting comprehensive measures by setting up an environmental protection responsibility and evaluation system. The competent authorities should include environmental protection as an essential criterion in evaluating promotions for enterprises and selecting advanced civilized units. Specific evaluation measures will be worked out by the State Environmental Protection Bureau together with the departments concerned. The relevant authorities should give priority to funds for enterprises to control pollution and carry out comprehensive treatment.

Projects to build new, expand existing, and renovate old facilities and to upgrade technology, and all other engineering construction and natural resource development projects, which may pollute and destroy the ecology, must strictly observe the relevant state regulations governing construction and environmental protection. Existing facilities for preventing pollution should be operated under normal circumstances and should not be dismantled or laid idle without approval. Violations of the relevant regulations shall be punished by the environmental protection authorities.

Units which import advanced technology and equipment from other countries and regions must observe China's environmental protection laws, regulations, and policies; and they must not infringe upon China's environmental rights and interests and observe the Chinese regulations on environmental protection in a loose manner. In order to strictly guard against transfer of pollution, harmful wastes and garbage included in the lists of toxic and hazardous elements by foreign countries and regions, should not be transferred to and disposed of in Chinese territory.

### **3. Actively Coordinate the Efforts of All Quarters in Improving the Environment of Cities**

People's governments of cities should organize the efforts of all quarters in continuing to improve the environment, effectively promoting centralized pollution control, raising the investment returns in improving the environment, and strengthening the capability to resist pollution. It is necessary to make rational adjustments to the industrial structure and layout of construction projects in cities in accordance with their nature, environmental conditions, and functions by closing or systematically moving as deemed necessary factories, which discharge pollutants to the detriment of the residents and yet lack effective measures for improving the environment. In building new cities and revamping old ones, it is necessary to take into full account the requirements for environmental protection and comprehensive treatment by constructing corresponding facilities. It is also necessary to persistently perform several concrete tasks in environmental protection for the masses every year and solve selective problems, of which the masses are rather critical.

Environmental protection agencies under the provincial, autonomous regional, and municipal people's governments are responsible for conducting quantitative evaluations of the comprehensive treatment of the environment of all cities in each province, autonomous region, or municipality. Results of the evaluations annually should be published. Evaluation results on the comprehensive treatment of municipalities, provincial capitals, and key tourist cities should be published after verification by the State Environmental Protection Bureau.

#### **4. Attach Importance to the Protection of Ecology While Exploiting and Utilizing Resources**

People's governments at all levels and the competent authorities must enforce the relevant state laws and statutes on resources and environmental protection. In line with the principles of "whoever exploits resources, causes ecological damage, and utilizes the resources must protect, restore, and compensate for the environment" and of "laying equal emphasis on both exploitation and protection," it is necessary to conscientiously protect and rationally utilize natural resources and actively carry out trans-departmental cooperation in order to reinforce the management of resources and ecological construction and ensure a good job in natural protection work.

Forestry departments should step up the protection and management of forest vegetation and check wanton felling of trees, in order to increase the areas, quality, and management standards of afforestation. They should also work out plans for constructing large shelter-forests.

Water conservancy departments should strengthen unified planning and management of water resources. In exploiting and utilizing water resources, it is necessary to fully consider the effects on the ecology and, together, the relevant departments ensure a good job in assessing the effects on the environment, conserving water, protecting drinking water sources, and preventing soil erosion.

Agricultural departments should increase the protection and management of the farming environment, control environmental pollution caused by insecticides, chemical fertilizers, and vinyl sheets for agricultural use, and widely advocate comprehensive prevention and control of plant diseases and pests. They should also rationally adjust the farming structure and actively develop agricultural production in accordance with the local resources and requirements for environmental protection.

Various departments in charge should further strengthen management of wild animals and plants in order to protect their resources. Law-enforcing departments must deal severely with illegal criminal activities destroying wild animals and plants.

Various departments in charge must strengthen the building and management of nature reserves under their jurisdiction by actively drawing up plans to designate nature reserves. Any area worth preserving should be

designated a nature reserve as soon as possible. Environmental protection departments should strengthen unified supervision and management over the work of protecting nature by making overall plans to designate nature reserves; make policies, laws, and regulations for building nature reserves; be responsible for making suggestions to the State Council for the approval of national nature reserves; institute a system by which a report on the effect of a construction project on the environment should be submitted if the project to exploit and utilize natural resources affects the environment; and in coordination with departments concerned, work out the norm and method for evaluating the ecological environment.

#### **5. Launch Various Forms of Propaganda and Education on Environmental Protection**

Propaganda and educational departments should include propaganda and education on environmental protection in their plans; conduct various forms of propaganda and educational activities to publicize "environmental protection is a fundamental national policy," the "Environmental Protection Law of the PRC," and the importance of protecting resources; disseminate environmental science and knowledge of environmental law; raise the nation's, particularly the leading cadres', environmental awareness and knowledge of environmental law; and make society understand that it is everyone's duty to protect the environment. Schools of higher learning should set up special courses on environmental protection; middle, elementary schools, and kindergartens should disseminate knowledge of environmental protection in coordination with the various courses; and various localities and departments should make education on environmental protection an important item in training cadres.

#### **6. Actively Conducting Research To Develop Science and Technology on Environmental Protection**

Research and development of science and technology on environmental protection should be included in the medium and long-term science and technology development plans and fiscal plans of the state, local authorities, and departments concerned. The State Planning Commission and the State Science and Technology Commission should give priority to important projects on environmental protection under conditions of overall balance. Various localities and departments should actively conduct research and adopt advanced technology, techniques, and equipment which cause no pollution or very little pollution; backward production technology and equipment must be renovated or suspended within a prescribed period of time; new research achievements on environmental production should be popularized and applied.

#### **7. Actively Participating in International Cooperation in Solving Global Environmental Problems**

China is actively participating in international cooperation and exchange in environmental protection as it

pursues an independent foreign policy. In signing relevant international conventions, we should make investigations and studies and other preparation work well and adopt an active and prudent approach.

Various departments and units should earnestly implement and actively publicize the Chinese Government's principled stand on global environmental problems and pay attention to protecting the interests of China and other developing countries when participating in relevant international activities. The Ministry of Foreign Affairs and the State Environmental Protection Bureau should join other relevant departments in improving coordination work, both internally and internationally, with regard to important international activities on environmental protection.

#### **8. Adopting an Environmental Protection Target Responsibility System**

Local people's governments in various localities must strengthen unified leadership over environmental protection work, give full play to the role of various departments and units, and solve environmental problems in a planned and orderly way. They should, in accordance with the environmental protection target drawn up by the government and in light of local conditions, formulate environmental protection target and implementation measures for their areas. These targets should be fulfilled together with yearly development plans. In evaluating the work of a government, the fulfillment of environmental protection targets should be used as the basis, and a report on the fulfillment of the targets should be submitted to people's congresses at the same level or to the government at a higher level.

All relevant departments of the State Council should do a good job in striking an overall balance in environmental protection work when executing the national economic and social development plan. They should draw up economic, technology, and energy policies favorable to environmental protection; strengthen overall guidance; and gradually increase input in environmental protection in accordance with the level of economic development in order to coordinate environmental protection work with economic and social development. The original channels of funds for environmental protection should be kept open with accordance with the new situation, and efforts should be made to control key pollution projects and build key environmental protection demonstration projects.

The State Environmental Protection Bureau will exercise unified supervision and control over environmental protection work throughout the country; environmental protection departments of governments at and above the county level will exercise unified supervision and control over environmental protection work in areas under their jurisdiction. Environmental protection departments at all levels should, in accordance with the scope of their power, adopt concrete measures to improve environmental protection regulations and standards, gradually

enforce a system of controlling the total amount of pollutants allowed to be discharged and of issuing pollutant discharge permits, establish a system of submitting reports on environmental conditions, and work with other relevant departments to check key pollution control projects. Environmental protection departments of governments at and above the provincial level must issue communiques on environmental conditions on a regular basis.

People's governments at all levels should, in accordance with their environmental protection duty and tasks, improve environmental protection organs, improve the quality of grassroots environment supervisors and law-enforcement personnel, increase the number of law-enforcement personnel, and give active support to environmental protection departments in independently exercising their supervisory and administrative functions.

#### **Song Jian Addresses National Meeting on Environmental Protection**

*OW2712021590 Beijing XINHUA Domestic Service in Chinese 1346 GMT 24 Dec 90*

[By reporter Zhu Youdi (2612 1635 2769)]

[Text] Beijing, 24 Dec (XINHUA)—At the closing of the national meeting of directors of environmental protection departments and bureaus today, State Councillor Song Jian said: It is necessary to incorporate the environmental protection plan into the national economic and social development plan, promote the coordinated development of economic construction and environmental protection, and establish a new order in environmental protection work. It is also a pressing task to promote the development of industrial environmental protection.

Song Jian said: The international environmental protection wave has been further heightened this year. The rapid development of the situation in international environmental protection demands that we do a good job in domestic environmental protection. In particular, we must make considerable progress in promoting the consciousness of all the people with regard to environmental protection, improving the structure of energy resources and participation in legislation on international environmental protection. Environmental protection is also an important component part of improving and rectifying the economy. As one of the significant aspects of the macroeconomic control system, environmental protection has continued to be consistent with the objectives of improving the economic environment, rectifying the economic order and deepening the reform. In order to maintain appropriate economic growth, we must avoid rushing headlong into mass action or setting up too many organizations. To improve economic results, we must reduce the wastage of energy and materials, tap the latent power and initiate reform. One of the major contents of checking on environmental protection in industries and



enterprises is to require enterprises to economize on energy and cut down on wastage and drains on materials. Environmental protection can also do much to help in structural improvement. For those enterprises that cause serious pollution problems, it is necessary to impose a deadline for improving the situation, and as for the smaller enterprises such as small paper mills and coking and dyeing factories, that are pollution prone, it is necessary for them to shut down, merge, suspend their operation or switch over to the manufacture of other products.

Song Jian maintained: People's governments at various levels and the relevant coordinating departments must, while they work out their plans for the Eighth Five-Year Plan, strictly implement the "Law on Environmental Protection" as well as the recent decisions of the State Council, and conscientiously incorporate the environmental protection plan into their plans for national economic and social development. During next year and the Eighth Five-Year Plan period, various localities and departments must regard the implementation of investment in environmental protection and improving economic results of the investment as a significant task to be attended to in earnest. It is necessary to have powerful law enforcement agencies in areas that have serious pollution problems. Discharging of pollutants must be firmly put under control. At the same time, we must solve the problems arising from being overly lenient or infirm in enforcing the law. We must strengthen the training of administrative contingents and upgrade the quality of administrative personnel. It is necessary to integrate the Eighth Five-Year Plan with the 10-year plan, and various localities must firmly grasp the work involving nature preserves so as to bring the work of nature protection to a new level.

Song Jian said: Next year is a year for improved quality, variety and efficiency. It embraces improvement of environmental quality and results as well as improvement of the variety, quality and efficiency of industrial environmental protection. We must resolutely implement the reform and open policy in the work of environmental protection. Every environmental protection worker must "come with a heart and leave without a straw of grass." For the sake of preserving the earth and natural environment of the motherland, we must increase the consciousness of the all the people toward environmental protection and pave a broader way for establishing an environmental protection system with Chinese characteristics.

#### **Minister Reports to Congress Meeting on State of Forestry Sector**

*OW2712191290 Beijing XINHUA Domestic Service  
in Chinese 1234 GMT 26 Dec 90*

[Text] Beijing, 26 Dec (XINHUA)—Entrusted by the State Council, Forestry Minister Gao Dezhan today made a report on forestry work to a plenary session of the

17th meeting of the Seventh National People's Congress [NPC] Standing Committee.

On achievements in production and construction in our country's forestry, Gao Dezhan said: Since the founding of the PRC, our country has made tremendous achievements in production and construction in forestry. Through development and construction, we have built 132 state forestry bureaus in northeast China, Inner Mongolia, and other major state-owned forest regions, as well as a large number of state and collective tree farms across the country. Now forestry in our country has developed into a comprehensive industrial sector, including afforestation, forestry management, lumbering, transportation, forest products, the development of a diversified economy, machine building, and scientific and technological education. There are now 2.26 million workers on state tree farms. An upsurge has been brought about in the all-people voluntary tree planting campaign. Personages in various circles and the broad masses have participated actively in planting trees and building key forestry projects. Now our country has 1.87 billion mu of forest and 9.14 billion cubic meters of forest resources. Its preservation of 460 million mu of man-made forests is said to lead the world. China now afforests about 80 million mu and produces 60 million cubic meters of wood and 2 million cubic meters of plywood of various kinds every year. Forestry has played an important role in socialist modernization.

He said: Forestry departments at various levels, under the leadership of party committees and governments, have implemented conscientiously the policy on economic improvement and rectification and deepening reforms in recent years. Keeping in mind the general goal for the development of forestry, they have strengthened their management and improved their work. With the support and cooperation of various departments, our forestry has developed further in a favorable direction.

Afforestation has developed vigorously, the quality of afforestation has improved continuously, and the area of forest cover has begun to increase. All provinces, autonomous regions, and municipalities have made tree planting plans and set their targets. Now forestry work is being institutionalized or standardized. Afforested areas have increased steadily. This year, the country planned to afforest 83 million mu (of which 17 million mu were to be afforested through sowing seeds by aircraft) and to close 55 million of hillsides to facilitate afforestation. These plans have been overfulfilled. The percentage of forest cover, instead of decreasing, has begun to increase. It has increased to 12.98 percent now from 12 percent during the last survey. Marked progress also has been made in the construction of key forestry projects.

The work of "three preventions" has gained progress. Results have been outstanding in the prevention of forest fires, as there has been a big decrease in forest fires continuously for the last three years. After making the best record in history last year, the number of forest fires

and destroyed forest areas in the first half of the year have again decreased respectively by 61.3 percent and 84.7 percent, compared to the corresponding period of last year. The prevention of tree diseases and insect pests has also been progressive and the rate of prevention is much higher than the 30 percent of last year. The evil practice of large-scale wanton and illegal felling of trees has been basically stopped and forest incidents have been reduced from last year as a result of strengthening preventive measures and of the hard work of various departments.

The resource management and forestry administration have been strengthened, and the consumption of forest resources has declined over the years. Through rectification and strengthened management, the consumption of forest resources has dropped roughly by 20 million cubic meters annually in the last two years. This, together with strengthening afforestation, has resulted in the increase of forest growth rate. More than half of the provinces and autonomous regions have achieved a greater growth rate over the consumption rate, thus diminishing the deficit of forest resources over the years.

Grassroots and infrastructure construction in forestry have been strengthened. Building forestry work stations in districts and townships (towns) has gained great advancement. It is estimated that there will be 7,630 new stations built this year, and the total forestry stations in the whole country will reach 35,000 by the end of the year, 210 percent over the 1987 total. This has changed on a preliminary basis the lack of management of forestry at the grassroots level.

The importance of the green industry has been emphasized further. Currently, the total output value of the diversified undertakings of the country's forestry has reached 2.74 billion yuan.

Gao Dezhan said: While we have made great achievements in our nation's forestry production and construction, we also have left many problems unsolved. The development of forestry in various areas is unbalanced. The current conditions of forestry are highly incompatible with the requirements of national economic development and improvement of ecology and environment. The situation of forestry area is still quite grim. The continuous decrease in forestry resources not only has exacerbated the imbalance in demand and supply, but more importantly, has affected seriously the ecology and environment. Key forestry enterprises in state-owned forest regions are facing resources crisis and economic problems. Insufficient investment funds have weakened the ability of building and managing the forests. The management of forestry has not been standardized according to the law. There is still a lack of common understanding of the role and functions of forestry.

Gao Dezhan said: The concern and attention of the party and state have promoted the development of forestry in the last two years. Last December, Premier Li Peng specially convened a work meeting to study the solutions

to the problems existing in forestry and its work. A series of strong measures were adopted. Last year, the National People's Congress [NPC] Standing Committee's "Forestry Law" inspection group inspected Hubei, Anhui, Guizhou, Hunan, Guangxi, and Hainan. This year, the inspection group formed by the NPC financial and economic committee inspected key forestry enterprises in Heilongjiang, Jilin, and Inner Mongolia. Chen Muhua, vice chairman of the NPC Standing Committee, convened specialists' meetings several times to hear reports on the problems of forestry industry and forestry work. This not only shows the importance and support given by the NPC to forestry work, but also has helped promote and supervise forestry work. On 5 March this year, General Secretary Jiang Zemin and Premier Li Peng specially sent a letter to the ninth (enlarged) meeting of the National Greening Committee. They pointed out: "Party committees and governments at all levels should place high importance on afforestation and greening work and make them an important agenda. Strong leadership should be practiced to motivate the masses so that the whole community will be involved in the development of the forestry and greening project." This has clarified further the direction of development of forestry in our country. As a result of the concern and attention of the party and state and the vigorous support of the various departments, some important measures have been taken to promote forestry this year.

Facts have shown that every achievement in forestry production and construction was the result of the joint efforts of our localities, departments, social circles, and vast numbers of individual cadres and masses, who worked guided by the concern of the party and state. Although departments responsible for forestry have made overwhelming efforts, there are still gaps to be filled and problems to be resolved. We must work seriously, conscientiously, and in a pioneering spirit to do a better job in forestry in order to meet the needs of its development.

Gao Dezhan pointed out: For this purpose, in accordance with the party's line, principles, and policies and the State Council's plan and arrangement and in light of our country's overall conditions and its forestry situation, we have made deepening reform, improving productivity, increasing resources, and enhancing vitality in forestry the general goal of our forestry work. Reform has gradually effected four changes in forestry. The first is the change from felling and exploiting natural forests to building and managing forests. The second is the change from concentration on timber production alone to diversification, comprehensive utilization, and overall development. The third is the change from extensive operation to intensive operation and scientific management through the reliance on science and technology. The fourth is from relying primarily on forestry departments to involving all sectors of society in developing forestry and all citizens in greening the land. At the same time, we have used systems engineering and comprehensive measures to increase forest resources. We have tried to

speed up breeding and cultivation and strengthen protection to enhance the growth of forests while taking steps to limit felling and promote rational exploitation to control consumption of forest resources.

Regarding future emphasis of forestry work, Gao Dezhan pointed out: We must implement, in an all-round way, our national afforestation and greening plan to speed up afforestation and improve the quality of our forests. We must seriously enforce the new felling quotas and strengthen forest resources management and administration to strictly control the consumption of forest resources. We must manage forestry according to law and raise work in protecting forests to a new level. We must actively develop forestry and diversify operations to enhance the vitality of our forests. We must do a good job of developing forestry through reliance on science and technology and take serious steps to strengthen enterprise management. Key forest industrial enterprises should turn their attention to internal management, conduct their work in a pioneering spirit, and take serious steps to prevent the depletion of our forest resources and to revitalize our forest industry.

#### **Official Reveals Success of Antipollution Efforts**

OW2212143990 Beijing XINHUA in English  
1425 GMT 22 Dec 90

[Text] Beijing, December 22 (XINHUA)—Major anti-pollution goals set for the past five years have been achieved thanks to adequate policies and strict control measures, a government official said here today.

Qu Geping, director of the State Bureau of Environmental Protection, told a national conference that the state invested nearly 45 billion yuan (about 9.5 billion U.S. dollars) in reducing industrial pollution and improving urban environments in the five past years.

Over 450 cities across the country have completed greenizing [as received] projects, while the air there has become cleaner and noise has been kept down even though the number of automobiles has doubled.

Reducing industrial pollution is one of the government's major tasks. In the past five years the percentage of cleaned industrial waste water rose from 36 points to 56 points and the discharge volume of industrial solid waste decreased by 50 percent.

The government has ordered the closing down or change in production of more than 10,000 enterprises found to be spreading pollution.

Meanwhile, afforestation has been promoted nationwide to keep the ecological balance and prevent soil erosion.

The state has also set up 606 nature reserves, with a total area of 40 million ha.

Moreover, China has established cooperative relations with over 100 countries and international organizations with respect to the environment.

As China is a developing country and lacks funds, Qu said, the pollution problem is still serious. He said that the state will further tighten management and rely on science and technology to improve the environment in the 1990s.

#### **National Urban Hygiene Survey Finds Improved Sanitary Situation**

OW2212165290 Beijing XINHUA in English  
1511 GMT 22 Dec 90

[Text] Beijing, December 22 (XINHUA)—A national survey of urban hygiene indicates that Beijing, Shanghai and Guangzhou are the cleanest cities in China.

Seven other cities—Tianjin, Dalian, Chengdu, Harbin, Nanjing, Jinan and Shenzhen—follow in order of cleanliness.

The survey lasted two months and involved 455 cities. It was the first nationwide hygiene survey.

Chen Xitong, mayor of Beijing, was one of 30 mayors who won prizes for the cleanliness of their cities.

According to the National Patriotic Public Health Campaign Committee, which sponsored the survey, garbage disposal, lavatory sanitation, environmental sanitation, elimination of rats and mice, and sanitation in airports, railway stations, bus stations, ports and scenic spots were the main targets of the investigation.

"The national examination and appraisal of urban hygiene has greatly improved the sanitary situation in many cities," said Chen Minzhang, deputy director of the National Patriotic Public Health Campaign Committee and minister of public health.

Statistics show that since the beginning of the survey nearly 50 new garbage disposal plants have been established in Beijing and 14 other cities. In addition, 53,000 dustbins have been added and 740 million more trees planted in these cities. Meanwhile, more than 7,400 hygiene supervisors have been appointed.

"Cities should attach great importance to the disposal of garbage, smoke and waste water during the Eighth Five-Year Plan period (1991-1995)," Chen said.

Hygiene surveys will be made every two years from now on, according to Chen.

#### **Impact of Thermal Power Industry Development and Strategy of Environmental Protection**

90WN0095C Shanghai DONGLI GONGCHENG  
[POWER ENGINEERING] in Chinese Vol 10, No 2,  
Apr 90 pp 5-8

[Article by Dong Shuping, Qinghua University]

[Text] Abstract: This paper describes the effects of development of heat and electricity generation on the environment, a brief presentation of technologies and

facilities for controlling environmental pollution, and a strategy for protecting the environment compatible with the national situation.

**Major Themes:** Thermal Power Generation, Atmospheric Pollution, Environmental Protection

### Foreword

The history of development of a society shows that heat and electricity are the foundations of the development. They not only are directly involved in increasing productivity and improving living standards, but also affect the process of economic development of society.

The developed and the developing nations alike appreciate the importance of heat and electricity generating industries, and strived to maintain an appropriate proportional increase in the supplies of heat and electricity to satisfy the demands of national economic development.

In step with the progress in modernization of our country, the demands for heat and electricity are constantly increasing. In order to solve the problem of the ever-present disparity between the supply and demand, we must continuously enlarge the scales of generating heat and electricity, making them "the leading industries".

Based on present conditions of the development and utilization of energy resources in our country, heat and electricity generation is and will be dependent to a large extent on burning coal of various kinds. It must be pointed out that the severe environmental pollution resulting from burning a large quantity of coal must be recognized and must be solved by taking appropriate measures.

### I. The Effects of Production of Heat and Electricity on the Environment

The smoke emitted from a coal burning power plant contains soot, sulfur dioxide and oxides of nitrogen. They are the major atmospheric pollutants, very harmful to human health and plant growth.

The sulfurous compounds, SO<sub>x</sub>, in the atmosphere are very detrimental to those who suffer from diseases such as arteriosclerosis, coronary heart disease, bronchitis, emphysema and asthma. The sulfurous pollutants which adhere to the emitted particulates, in particular, may be lethal to these patients.

In addition, there may be strong mutual synergistic interaction between smoke and sulfurous pollutants, and also with other pollutants such as hydrocarbons and radioactive elements. Their possible effects on the incidence of disease and mortality are being studied.

The oxides of nitrogen, NO<sub>x</sub>, in the atmosphere are toxic and greatly irritate the mucous membranes of the eyes. Furthermore, as it is insoluble in liquid, it can pass through the trachea to reach deep inside the lung to injure the bronchi and the lung cells.

Numerous tests and observations in many countries indicate that NO<sub>x</sub> creates powerful biological effects.

Those who live in a NO<sub>x</sub> polluted area encounter the problems of lowered respiratory efficiency, high incidence of diseases of the respiratory system and hard to treat methemoglobinemia.

The NO<sub>2</sub> content of 4 - 6 mg/m<sup>2</sup> in the air is seriously harmful to plants. Chlorosis is induced in vegetables when they are exposed to the air containing 2 mg/m<sup>2</sup> of NO<sub>2</sub> for an extended time. Although plants grown in an environment with a lower NO<sub>2</sub> content do not show symptoms of damage, their growth will nevertheless be affected. This is because NO<sub>2</sub> absorbs the natural radiation, thus lowers the air transparency and diminishes photosynthesis, on which plants depend for their growth.

It must also be pointed out that the acid in acid rain comes mainly from atmospheric pollutants, SO<sub>2</sub> and NO<sub>x</sub>. Under the unfavorable conditions of high quantity of sulfur emission, a certain land topology and the weather, acid rain may ensue. It is corrosive to houses, buildings and other structures and shortens their useful lives.

Just because the emission from coal burning thermal power generation plants is polluting the environment causing the above described damage, every country has set limits regarding the emission of pollutants from thermal power plants. For example, the U.S. requires that a newly built thermal power plant must be equipped with a smoke desulfurization facility to remove 90 percent of the SO<sub>2</sub> in the smoke, or limit the emission of SO<sub>2</sub> to less than 0.52 g/MJ (1.2 lb/106 BTU), a very restrictive regulation. Even if some limits are loosened, 70 percent of the SO<sub>2</sub> in the smoke must still be removed or the emission of SO<sub>2</sub> must be less than 0.26 g/MJ (0.6 lb/106 BTU). Table 1 lists the limits of pollutants emitted from a Russian coal burning thermal power plant. In our own country, the special atmospheric environmental standards in quantity and quality suitable for the whole nation (GB-3095-82) has been established according to the requirements of the environmental protection law (tentative) to control and improve the quality of the air, to create a clean environment, to prevent destruction of the ecological environment, to protect the health of the citizens and to promote economic development. Table 2 lists three classes of standards for the concentration limits of atmospheric pollutants.



**Table 1. Emission Limits for Pollutants From Thermal Power Plants in Russia**

Pollutant	Maximum Allowed Concentration, mg/m <sup>3</sup>	
	One time highest value	Daily average
Non-toxic Dust	0.5	0.15
Sulfur Dioxide	0.5	0.05
Nitrogen Dioxide	0.085	0.085
Carbon Monoxide	3.00	1.00
Hydrogen Sulfide	0.008	0.008
Fly Ash	0.15	0.05

**Table 2. Three Classes of Standards for Concentration Limits of Atmospheric Pollutants in China**

Pollutant	Concentration Limit, mg/Nm <sup>3</sup>			
	Sampling Time	Class I	Class II	Class III
Total Suspended Particles	Daily Average*	0.15	0.30	0.50
	Random**	0.30	1.00	1.50
Floating Dust	Daily Average	0.05	0.15	0.25
	Random	0.15	0.50	0.70
Sulfur Dioxide	Yearly Daily Average***	0.02	0.06	0.10
	Daily Average	0.05	0.15	0.25
	Random	0.15	0.50	0.70
	Random	0.10	0.15	0.30
Nitrogen Oxides	Daily Average	0.05	0.10	0.15
	Random	0.10	0.15	0.30
Carbon Monoxide	Daily Average	4.00	4.00	6.00
	Random	10.00	10.00	20.00
Optical chemical oxidant (O <sub>3</sub> )	Hourly Average	0.12	0.16	0.20

Notes: \* "Daily Average" means that the average concentration of any single day may not exceed this limit.

\*\* "Random" means that the concentration in the sample taken at any single time may not exceed this limit. See the related literature for the rules concerning the "random" sampling for different pollutants.

\*\*\* "Yearly Daily Average" means that the daily average concentration of any single year may not exceed this concentration.

## II. Environmental Pollution Control Technologies and Facilities

### 1. Pre-Combustion Control

Cleaning and addition of certain additives to fuel before combustion are the two main methods for improving or changing the combustion process inside the furnace to lower the emission of pollutants.

(1) Cleaning the coal. This is a method to separate out ash, noncombustible substances and iron pyrite. It usually utilizes a coal cleaning system consisting of devices for pulverization, separation, sieving and washing. By selecting different types of machines and devices, different modes of cleaning can be assembled, thus satisfying the demand of cleaning different kinds of coal.

The key to coal cleaning technology is separation of impurities. Advanced separation equipment applies the "foam floatation method" to recover fine coal particles. The feature of this technology is using the hydrophilic and hydrophobic properties of coal and impurities to process their separation.

Regardless of how many kinds of coal cleaning systems there may be, the requirement is how to reduce the loss of fine coal particles in the cleaning process and to increase the removal rate of impurities.

(2) Addition of additives. An appropriate amount of lime or other absorbent is added to coal before it enters the furnace in order to absorb SO<sub>2</sub> formed in the furnace. At present, there are several patented highly efficient desulfurizing agents in this country and abroad, some of which have been commercialized.

### 2. Control During Combustion

"Fluidized-bed combustion", which is currently under development is a very efficient way to control the emission of SO<sub>2</sub> and NO<sub>x</sub>. In this combustion technology, a solid mixture (containing fuel, boiling aids and absorbent) is burned in the fluidized state under the conditions of relatively low temperature (850 - 900°C), relatively high heat conductivity and rate of mass transfer, thus reducing the formation of NO<sub>x</sub>, and at the same time facilitating the absorption of SO<sub>2</sub> in situ by lime or other appropriate absorbent.

In recent years, research in "sintered porous desulfurizing agents" has continued in this country and abroad. Some products are used in a circulating fluidized-bed that extends the contact time of the desulfurizing agent, thus reinforcing the desulfurizing effect and raising the utilization efficiency of the desulfurizing agent. For instance, when the ratio of calcium to sulfur is 1.5, the rate of SO<sub>2</sub> removal can reach more than 90 percent.

By improving the function of a furnace, NO<sub>x</sub> formation can be reduced. A so-called "low NO<sub>x</sub> burner" maintains a low temperature and fast heat dissipation by controlling the mixing of fuel and air. In this burner, fuel and air are not mixed all at once as soon as they are injected into the furnace, but the combustion process is made to proceed in stages, forming the first combustion zone and the second combustion zone.

There are many different types of low NO<sub>x</sub> burners, usable as a newly constructed boiler or for replacing an existing old-fashioned burner. Their main differences are: the mixing rate of slow burning fuel and air; the efficiency of O<sub>2</sub> in the low NO<sub>2</sub> formation zone; and reducing the quantity of fuel being burned under the condition of extremely high temperatures. All these make possible different degrees of control of the formation of NO<sub>x</sub> during the combustion process.

The so-called "re-combustion mode" uses step-by-step combustion; i.e., 10 - 20 percent of the fuel entering the furnace is diverted to the downstream of the first combustion zone to make up the second combustion zone. The second combustion zone operates under a condition of sub-ideal proportion of the supply of oxygen as required by the chemical equation. The NO<sub>x</sub> formed in the first combustion zone is reduced to elemental nitrogen in the second combustion zone. If a recombustion mode is functionally combined with a low NO<sub>x</sub> burner, then the total NO<sub>x</sub> reduction can reach more than 90 percent.

Another example is the so-called "spraying absorbent method". The SO<sub>2</sub> removal can be boosted by spraying the absorbent directly into the burner or at an appropriate point inside the furnace.

Among the technologies which use the furnace cavity as the base to remove SO<sub>x</sub>, NO<sub>x</sub> and dust particles, a "liquefied slag removal" combustion mode must be emphasized. It is carried out inside a tightly constructed, high heat generating cyclone combustion chamber. Its characteristics are: (1) air is supplied in stages to create a reducing environment to control the NO<sub>x</sub> formation; (2) dust particles are trapped by liquefied slag; (3) stage-wise combustion in which the gaseous products of the first combustion zone complete their combustions in the second combustion zone; and (4) lime or other absorbent is added to the burner or in the furnace cavity to absorb SO<sub>2</sub>.

### 3. Post-Combustion Control

Two NO<sub>x</sub> controlling systems, which are installed ahead of the air pre-heater, are described here; they are selective-noncatalytic reducing [SNR] and selective-catalytic reducing [SCR] systems.

The technical procedure of an SNR system is relatively simple. It is to spray ammonia, urea or other nitrogen containing compound into smoke at a suitable temperature range (870 - 1200°C) to reduce NO<sub>x</sub> into elemental nitrogen.

Experience in the development of this system in Japan and the Federal Republic of Germany in recent years indicates that it is possible to remove more than 80 percent of NO<sub>x</sub> and the key to improvement of the SNR system is in improving the hardware to accomplish adequate mixing of the reductant and smoke. For instance, the mixing efficiency can be improved by placing more injectors at appropriate points. Besides, addition of a chemical additive can widen the workable temperature range to 537 - 1204°C. The possible problems that may occur with an SNR system is that the by-product salts which are formed by reaction with acidic smoke may damage the installation at the tail end of the furnace, or they may form coiled, not easily dissipated smoke in the chimney. The effects of varieties of coal and its moving characteristic inside the furnace need to be thoroughly investigated.

The reaction process of an SCR system is the same as that of an SNR system. But in the former, it proceeds under a catalytic condition. The important hardware of the system is a beehive-shaped catalytic converter which is installed ahead of the air pre-heater or behind it in the path of smoke. The catalytic converter is fashioned from the catalytic element which consists of titanium dioxide, tungsten oxide or vanadium oxide and a metallic alloy. As smoke containing NO<sub>x</sub> and the reductant flow through the catalytic converter, it is quickly converted into elemental nitrogen and water.

The requirements for designing an SCR process are: attaining the appropriate flow velocity for the reaction to take place, maintaining the accurate ratio of NH<sub>3</sub> and NO<sub>x</sub> in smoke, and reducing corrosion due to fly ash or poisoning of the catalytic converter by some elements as much as possible.

According to the experience of foreign countries, the efficiency of NO<sub>x</sub> removal of an SCR system is higher than that of an SNR system. The efficiency of NO<sub>x</sub> removal of a large scale installation in Japan is as high as 85 percent, and in the Federal Republic of Germany it can reach 90 percent. But the cost of an SCR is higher than that of an SNR.

### III. The Environmental Protection Strategy Compatible With the Situation in China

Environmental protection calls for large-scale system engineering. It requires careful consideration of many complex interrelated technological, economic and societal factors. A strategy for environmental protection is herewith proposed with regard only to the characteristics of heat and electricity generation.

#### 1. Process Raw Coal by Washing

The coal used for generating power in our country is basically raw coal, unprocessed by any means. It contains a large quantity of rocks and iron pyrite. Those impurities not only add to the transportation cost, but dust and sulfur dioxide are discharged into the air in the end. The coal from the southwest region has a high sulfur content, but very low proportion of it is being washed, resulting in sulfur dioxide atmospheric pollution and acid rain that are already quite serious.

Experience has shown that about 2/3 of the ash and half of the sulfurous substance can be removed by washing. The coal mining agencies should wash the raw coal before supplying it to customers, particularly those customers who use it to generate electricity or supply heat. The regional environmental protection agencies should, according to the quality of air of the region and its ability to control, propose the allowable standards for ash and sulfur contents of coal in order to promote the development of the coal washing process.

#### 2. Construct a Power Plant Right at the Mine According to Its Suitability

Construct a power plant right at the mine in the coal mining area, particularly where the inferior, high sulfur coal is produced, to burn the locally produced low quality fuel to generate electricity and supply the electricity to customers through transmission lines. The waste from coal burned at the power plant should be utilized, for example, making building materials from slag or extracting sulfuric acid from sulfur compounds and others, to improve the value of the energy resource. When selecting the mine location for a power plant, water availability and the distance between the power plant and the consumption center should be considered. It should be confirmed on technological and economic grounds.

### 3. Intensify the Development of Integrated Heat and Power Plant and Centralized Heat Supply

A heat and power combination plant and a centralized heat supply system not only increase the efficiency of heat exchange and heat utilization, but also allow concentration of the advanced pollution control technologies which are applicable to a modern large scale boiler. Therefore, regardless of planning an energy supply system for new development or replacing an energy supply system in an existing area, a combination energy supply system should be considered.

### 4. Continually Improve the Performance of Coal Burning Furnaces

As the requirement for environmental protection is becoming more critical, the boilers of large power plants must be equipped with ever more abilities to control the emission of pollutants. This requires that at the time of designing the boiler, adequate consideration must be given to adopting advanced technologies in removing dust, and controlling SO<sub>2</sub> and NO<sub>x</sub>, and its adaptability to variation in the kinds of coal used as the fuel in order to satisfy the environmental standards. To be sure, necessary modifications of existing boilers should also be done according to the existing situation.

### 5. Apply the Technology of Pressurized Fluidized-Bed Combustion and Construct an Integrated Circulating Power Equipment for Combustion Gas, Steam Heat and Electricity.

The characteristics of this kind of integrated circulating power equipment are: (1) different kinds of fuel may be used, particularly the inferior fuel, and it is very efficient in removing sulfur and reducing NO<sub>x</sub> to satisfy the ever increasing requirements of environmental protection standards; (2) the energy conversion rate and the energy utilization rate can both reach higher than 85 percent, and the investment per unit capacity is low, making it possible to supply heat and electricity inexpensively; and (3) suitable for both newly constructed power plants and enlarging existing power plants.

### 6. Support Scientific Research

In other countries, environmental protection has already become a new discipline, generally called "environmental protection science" or "environmental protection engineering", and a large amount of research is being carried out in specialized agencies and institutions. In comparison, we are quite backward in this area. We must intensify the research efforts in the theories and practices of the environmental protection system, technologies, economics, directions and policies to raise the scientific and technological competency of those involved in environmental protection at various levels.

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### Environmentalists Urge Protection of Lake Resources

OW1612085290 Beijing XINHUA in English  
0834 GMT 16 Dec 90

[Text] Beijing, December 16 (XINHUA)—A group of Chinese experts has called on the government to adopt measures to protect China's lake resources.

The number of lakes with an area above one sq km in China has decreased from 2,848 in the early 1950s to 2,300, according to a recent survey conducted by the China Environmental Science Academy and the Nanjing Institute of Geography under the Chinese Academy of Sciences.

The existing lakes are also threatened by pollution and shrinkage in area.

About one-tenth of the world's large natural lakes are distributed in China. To date, the lakes' area comes to 500,000 sq km.

However, in the past four decades, the area of lakes has decreased by 12,000 sq km, said Jing Xiangcan, deputy director of the Water Environmental Research Institute.

Jing said that in the Inner Mongolia and Xinjiang Uygur Autonomous Regions, the total area of lakes with an area above one sq km amounts to 16,400 sq km in the early 1950s. The figure is reduced to 9,411 sq km this year.

**Wildlife Protection Intensified To Combat Poaching***HK3112022190 Beijing CHINA DAILY in English  
31 Dec 90 p 3*

[By staff reporter]

[Text] The State has issued a document calling on local governments to strengthen wildlife protection in response to an increase in poaching cases over the last year.

Jointly issued by the Ministry of Forestry, the Ministry of Public Security, the Supreme People's Court, the Supreme Procuratorate and the State Industrial and Commercial Administration Bureau, the document urges local governments to pay special attention to cases which have occurred since March, 1989.

The document, which says that cases of poaching have increased since the autumn of 1989, stipulates that factories producing hunting rifles without permission from the Ministry of Forestry will be ordered to stop production. And people who hunt without permits will have their rifles confiscated.

The State's campaign to curb poaching comes in response to newspaper reports that 23 kinds of wildlife are being hunted for trade.

During inspections in the city of Chengdu, for example, 12 fur shops were found to be selling 430 pieces of fur from animals which are under State or local-government protection.

Of the 430 pieces, some 100 were from animals in the country which are under first-class protection, such as the golden monkey, Northeast tiger, leopard, and snow leopard.

China Environment News has reported that 625 rhesus monkeys, 7,000 birds, and 5,000 kilograms of frogs were smuggled from the Guangxi Zhuang Autonomous Region in 1988 and 1989.

A foreign trade agency in the city of Dalian, the paper said, had purchased 2.75 tons of bear's paw. The case had been discovered before the agency could export the paw.

The paper also said 585,000 live snakes, 145.7 tons of snake meat and 16,500 kilograms of dry snake meat had been exported in the past year.

Meanwhile, a private business in Tianjin export thousands of live birds a year, most of which were wild birds.

The paper said the killing of wildlife had already damaged the ecological equilibrium in some areas, causing more pests and mice.

**Environmental Supervision Network Gathering Data***OW3112101090 Beijing XINHUA in English  
0815 GMT 31 Dec 90*

[Text] Beijing, December 31 (XINHUA)—China has formed a large-scale environmental supervision network consisting of over 4,000 supervision centers with over 70,000 employees, PEOPLE'S DAILY reported today.

During the Seventh Five-Year Plan (1986-1990), the network obtained large amounts of important data on water, air, noise, biology, radiation and electromagnetic waves.

The network is spread throughout all provinces, municipalities and autonomous region of China.

**Environmental Science Bureau Publishes First Yearbook***OW2712195090 Beijing XINHUA in English  
1522 GMT 27 Dec 90*

[Text] Beijing, December 27 (XINHUA)—The first Environmental Yearbook of China, the 1990 edition, was published at a ceremony here today.

The yearbook, written by the State Bureau of Environmental Protection and published by the Publishing House of Environmental Science, is a large reference book which covers the major events and figures in the history of China's environmental protection efforts and undertakings, including those based in Taiwan Province, Hong Kong and Macao.

The 1.7-million-word 1990 edition contains 40 basic categories and over 2,000 references to environmental protection in China.

**Antarctic Study Group Returning Home***OW2712121790 Beijing Domestic Service in Mandarin  
1700 GMT 25 Dec 90*

[Text] Eighteen members of China's sixth Antarctic study team, having accomplished their scientific study tasks in one year, left Santiago for home on 24 December.

After their arrival in Antarctica at the end of last year, the members of the team, based at the Changcheng Station, conducted conventional studies in meteorology, seismology, and high altitude atmospheric physics. They also conducted observations of the sun and studied solar radiation, particularly the effect of ultraviolet rays on the environment and the human race. In addition, they also improved the scientific study facilities at the Changcheng Station, and set up nine laboratories for marine biology, medicine, electric wave transmission, geology, glaciers, and other sciences.

## Shanghai Makes Progress in Environmental Protection

91WN0125B Shanghai JIEFANG RIBAO in Chinese  
18 Oct 90 p 2

[Article by Xu Jufen (6079 5468 5358): "Initial Results Seen in Shanghai's Environmental Protection"]

[Text] This reporter has found out from parties concerned that the relevant departments of the municipal government have adopted three integrated methods of environmental protection: "integrating dealing with old pollution with controlling new pollution, integrating the step-by-step implementation of environmental projects with comprehensive renovation of district environments, and integrating the building of the legal system with management implementation." After several years of hard work, the departments have obtained fairly good results.

After vigorously tackling the problem of pollution control, departments basically have heavy metal pollution in the municipality under control. Municipality-level "smoke and dust control zones" in the 11 districts were examined and approved, and the smoke and dust control coverage rate is now 91.9 percent. During the Seventh Five-Year Plan, the municipal government invested 974 million yuan in dealing with a total of 8,943 pollution cases within prescribed time limits. At the same time, with regard to engineering projects, environmental protection projects and main projects were simultaneously designed, constructed, and put into production—the "three synchronisms" system—and new pollution was effectively controlled.

The municipal government obtained good results in protecting water sources when it decided not to permit construction of water-polluting industrial projects in the upper reaches of rivers. In 1985 Shanghai invested 496 million yuan in the first stage of construction of a diversion works in the upper reaches of the Huangpu River. In 1987, after the works were completed, the quality of potable water for 4 million residents in the municipality initially improved. To solve the problem of the dark, foul-smelling pollution in the Suzhou River, in 1986 the municipal government began investing 1.6 billion yuan in a project to bring the confluence of polluted waters under control. After the project is completed in 1993, a fairly big improvement in the quality of the river's water can be expected, and the project will lessen the pollution in the lower reaches of the Huangpu River. In addition, the municipality invested 33 million yuan to deal with 7,273 fixed sources of noise pollution, and now these fixed sources are controlled in 70 percent of the area of the municipal districts.

The municipality's environmental pollution is already managed under the law. The Shanghai Municipal People's Congress and the Shanghai People's Government successively promulgated 14 local environmental laws and regulations and eight standards governing environmental quality and polluting effluents. At the same time,

the municipal government got a tight grip on implementing management systems. In addition to continuing the "three synchronisms" management system for project construction, imposing pollution emission fees, and making environmental impact evaluations, it put five new systems into effect. These were the environmental goals responsibility system; the quantitative examination system for comprehensively renovating the municipality's environment; the pollution-discharge permit system; the system for controlling the concentration of pollution; and the pollution time-limit control system. The government thereby promoted Shanghai's cause of protecting the environment.

## Shanghai Measures Bring Pollution Under Control

OW1912181890 Beijing XINHUA in English  
1531 GMT 19 Dec 90

[Text] Shanghai, December 19 (XINHUA)—No black smoke can be seen nowadays in this, China's biggest industrial city. There is also less dust and little noise.

Waste water discharge and the heavy metal and other harmful substance volumes in water have all been reduced in the past five years as the municipal government has spent over 1.4 billion yuan in the fight against pollution.

Some 10,000 pollution sources have been dealt with, the worst offenders having been moved outside the city proper. In addition, three sewage treatment plants and two garbage disposal plants have been set up in the past couple of years.

## Shenyang Scientists Develop Waste Water Treatment Process

OW1712105690 Beijing XINHUA in English  
1037 GMT 17 Dec 90

[Text] Beijing, December 17 (XINHUA)—Chinese scientists have made major progress in the development of technology used to treat urban waste water with natural soil.

Scientists from Shenyang Institute of Ecology, which is under the Chinese Academy of Sciences, have conducted research into a waste water soil treatment system and have developed slow-rate filtration technology.

The research project, which was sponsored by the National Environmental Protection Agency, was listed as one of the key projects covered by the state's Seventh Five-Year Plan (1986-90).

The scientists say that because China discharges over 100 million tons of waste water each day, they have made great efforts to develop treatment methods other than traditional biochemical treatment, which is an expensive method and requires complex technology.



Scientific studies of ecological structures, as well as the pollution possibilities and operations management of the new soil treatment technology, have provided models for dealing with farmland that is currently irrigated by waste water, the scientists said.

Scientists say the cost of the new system is only 50-70 percent that of a biochemical treatment system, while operational expenses are only 70-80 percent.

Experts, who attended an appraisal meeting sponsored by the National Environmental Protection Agency and the Chinese Academy of Sciences here Sunday, said that the new system could be introduced to other cities and towns in the country.

### **Report on Nuclear Plant's Environmental Impact Adopted**

*HK1912110590 Hong Kong ZHONGGUO TONGXUN SHE in Chinese 0638 GMT 14 Dec 90*

[Report: "The Environment-Protection Report on Qinshan Nuclear Power Plant Is Passed"—ZHONGGUO TONGXUN SHE headline]

[Text] Beijing, 14 Dec (ZHONGGUO TONGXUN SHE)—A report on the environmental effects of Qinshan Nuclear Power Plant has recently been adopted by the State Environmental Protection Bureau.

As the nuclear facilities of Qinshan Nuclear Power Plant have met the State's relevant standards guiding environmental protection, the State Environmental Protection Bureau has examined and officially adopted "The Report on the Environmental Effects of Qinshan Nuclear Power Plant's 300 Thousand-Kilowatt Set." The report holds that with expected environmental effects controllable under the limit set forth by the state, Qinshan Nuclear Power Plant is now provided with various grounds for nuclear fuel loading.

After six years of construction, Qinshan Nuclear Power Plant is expected to be completed and put into production next year. It will begin to generate electricity through a joint network the same year.

### **Citizens' Monitoring Helps Reduce Tianjin's Pollution**

*OW2712145090 Beijing XINHUA in English 1153 GMT 27 Dec 90*

[Text] Tianjin, December 27 (XINHUA)—When housewife Cai Fengrong presented the data she had collected about smoke density, duration and times released by a steel mill near her residence, the mill director was amazed.

"How do you know so many details about the smoke released by our mill? Do you monitor it even at night?" the director asked.

The director then assigned technicians to copy Cai's records as reference for pollution control and for reward or punishment of the workers in charge of this task.

Cai Fengrong, 53, is only one of thousands of voluntary environmental monitors in Tianjin City, the leading port in north China.

The smoke and dust were so bad a few years ago that Cai and other residents of the Tiegongdong residential area could not open their windows even in the sultry summer.

"If you put out a white shirt to dry it would be soon be a black one," Cai recalled.

In 1984 the Hebei District of Tianjin—the district where Cai lives—set up an environmental protection network on three levels, namely the neighborhood committees, the sub-district committees and the district committee, and Cai was appointed a voluntary worker of the monitoring post of her neighborhood committee.

Since then, Cai has been monitoring the chimneys in the nearby factories and recording the density, duration, time and date of smoke releases regularly from early morning till late evening. She reports the results to the neighborhood committee, which collects them and reports them to the higher authorities.

Yue Jiwei, director of the Tianjin Municipal Environmental Protection Bureau, explained that each neighborhood committee has one to three voluntary workers who are responsible for monitoring smoke, dust, noise and odors. They then report their findings and file complaints.

Most of the voluntary workers are retirees, members of the neighborhood committees, deputies to the local people's congress or ordinary victims of pollution.

At present, there are 172 professional environmental protection workers in sub-district committees and 2,444 voluntary workers in the 1,974 neighborhood committees.

"The monitoring data provided by Cai and other voluntary workers is very useful for pollution control departments. The environmental protection offices of the sub-district committees and the district committees can use them when assessing fines on the polluting firms, and the urban authorities also use them for reference," a municipal official said.

"The voluntary monitoring is also very effective. For example, smoke density from 90 percent of factories near the residential area inhabited by Cai Fengrong have reached the state standard, that is, less than 400 mg of dust per cubic meter," he added.

Li Shaoting, an environmental protection worker in Hebei District, said that a nearby dyestuff factory used to release dust and sulphuric acid gas, and the voluntary monitoring workers recorded two pollution accidents. They filed complaints with the environmental protection



bureau and the municipal government. As a result, the factory had to move out of the urban area in 1986.

In addition to direct pollution, the local people are also aware of the necessity of protecting the ecological balance. For instance, the voluntary workers sometimes warn peddlers who sell frogs to release them lest the ecological balance be disrupted.

The municipal environmental protection bureau has reported that, with the help of the three-tier network, 95 boilers and kilns in Tianjin have been fitted with smoke and dust filters. The smoke and dust in the atmosphere have dropped to the state standard in 335.6 sq km of the city, including the whole urban area of 181.37 sq km,

and noise in residential areas covering 46.6 sq km has been brought under control.

To remove the smoke and dust emitted by household coal stoves the city has widely installed piped gas for cooking and heating. It has also widened roads and greened roadsides, residential areas, factories and riversides.

Statistics show that the daily average of suspended particles in the air has dropped from 0.56 mg per cu m in 1986 to 0.36 mg per cu m, the concentration of sulphur dioxide from 0.19 mg to 0.13 mg, and the monthly dust volume from 31.5 tons to 18.93 tons per sq km.

## REGIONAL AFFAIRS

**Malaysia-Singapore Committee on Environment Set Up***BK1612094290 Kuala Lumpur International Service in English 0600 GMT 16 Dec 90*

[Text] A Malaysian-Singapore Joint Committee on Environment has been set up to check pollution in Johor Strait. It is to be co-chaired by the chairman of Johor Tourism and Environment Office, Datuk (Jimmy Lau), and the former inspector of the Ministry of Environment of Singapore, Mr. (Chong Kwi Hua). It will also consist of eight permanent members.

This was stated in a joint statement in Kuala Lumpur today by the minister of environment of Singapore, Dr. Ahmad Mattar, and the minister of science, technology, and environment, Mr. Law Hieng Ding. The statement said both ministers have agreed that the issues to be addressed by the committee at its inaugural meeting next month will include harmonization of (emission) standards of motor vehicles. They will also include petrol quality, trans-boundary movement, and hazardous chemical [words indistinct], and monitoring of air and water quality in and around the Johor Strait.

During Dr. Mattar's visit, both ministers discussed the adoption of a common stand for the 1992 UN Conference on Environment and Development in Brazil.

## INDONESIA

**Environmentalists Caution on Safety of Nuclear Plant***BK2212084790 Jakarta ANTARA in English 0733 GMT 22 Dec 90*

[Text] Jakarta, Dec 22 (OANA-ANTARA)—A popular environmentalists group, Walhi, here Friday called on the government to stop the plan to construct the country's first nuclear power plant, saying that such a plant might contribute disasters far outweighing its benefits.

Ms. Emmy Hafild, Walhi's climate change program coordinator, said that there were too many examples of accidents in nuclear reactor stations having caused a wide range of disasters, daily Indonesian OBSERVER reported.

Her statement was supported by the non-government organization (NGO)'s energy working group coordinator Agus Pratamasari who said: our organization demands that the plan for construction of the nuclear power station be stopped until the whole nation reaches an understanding and becomes prepared to accept it.

He further said such a demand was reasonable as a nuclear power plant dealt with the fate of millions of Indonesians.

The government is now planning to build a nuclear power plant in Gunung Muria, Central Java province which is expected to be operational in 2003 by producing around 800 megawatts of electricity.

The government said the plant was necessary as Java, the country's most-populous island, would need 27,000 megawatts of electricity in 2015, when conventional power plants would only be able to produce about 20,000 megawatts of electricity.

A feasibility study on the plant's construction at present is still being carried out by the National Atomic Energy Board (BATAN) and is expected to be completed in 1994.

Ms. Hafild when supporting her arguments cited the example of several countries which began to express their uncertainty over the safety of nuclear power plant.

Japan, Germany, the United States and others have found out that nuclear power is not a safe substitute of energy reserve, she said adding that even the United Kingdom, which still had several operating reactors, was already thinking of reducing their numbers.

However, she said, all Walhi's staff members would also welcome dialogues and consultations with the government or other institutions about the issue so that a common perception could be reached.

**Report Released on Erosion, Deforestation, Warming***BK2612154590 Jakarta ANTARA in English 1008 GMT 26 Dec 90*

[Text] Jakarta, Dec. 26 (OANA-ANTARA)—Reduction in productivity of soils and sedimentation in Java has caused economic losses on the island alone as much as 400 million US dollars per year. According to a report on the Analysis of Global Change: A Structural Approach made by UNESCO/ROSTSEA [expansion of second agency acronym unknown] here, productivity of soils and sedimentation in Java reduced due to soil erosion at a rate of 3.65 mm per year, which is equivalent to rivers carrying away 96,495 hectares of land to a depth of 0.5 meters.

In Indonesia, soil erosion rate is increasing, the report says. In 1911, it was measured at 1.1 mm per year in 1911, in 1933 it was 2.2 mm per year, and in 1943 up to 3.3 mm per year. By 1970 the rate reached, 6.3 mm per year. Erosion of fertile soil is a major effect that arises as the direct result of deforestation and desertification. Indirectly, deforestation could also cause several cities to sink due to its contribution to global change, according to the report.

Global temperature is now rising as carbon dioxide concentrations increase because of the mounting industrial activities and the degradation of forests or the "lung" of the earth.

The temperature will rise by 3-4 degree celsius by the year 2025, and this eventually will lead to rising sea levels, resulting in a reduction of existing coastal areas and requiring concerted regional and international action to predict effects and implement mitigation procedures. In the first instance, some major cities in the tropics, such as Jakarta and Bangkok, are already reporting marine flooding.

Indonesia consists of around 17,000 islands, and a rise in sea-level may mean the disappearance of a considerable number, along with an overall reduction of land in the remainder. The majority of Indonesian cities, such as Jakarta, Surabaya, Medan, and Semarang, are situated on the coast. There may be a considerable number of people affected.

Many small islands (atolls) in the region in both the Pacific and Indian Oceans are composed of calcium carbonate aggregations, which are derived mainly from coral reefs.

Therefore, according to the UNESCO report, it is necessary to develop and verify estimations of calcium carbonate production by geographical location in order to determine the likely island response dynamics over the predicted range of sea-level changes. Depending on the results of such calculations, coral island may be expected to either keep pace with sea-level rise or be subjected to erosion.

Measurements made in the Pulau Seribu [Seribu Island] area to the north of Jakarta, show that massive corals add about 1.0 cm in growth yearly. Further study is now needed to find out whether coral atolls could be a solution to this problem.

Deforestation itself poses a big problem for a sustainable development in developing countries. Tropical forests are used by developing countries for: reserving land, rural energy source, construction, and income (export) earning. Indonesia has 74 percent forested land of total area of 196 million hectares.

Indonesia permits conversion only after adequate environmental impact assessment, since it realizes that a sustainable development cannot be accomplished without sustainable resources.

In 1970, FAO estimated the rate of deforestation in Indonesia to be around 300 thousand hectares per year. In the third Pelita (5-Year Development Plan, 1979-1984), this rate grew to an estimated 700,000 to 1.2 million hectares per year. According to the UNESCO report, economic losses due to forest destruction could reach US \$1 billion per year.

The Indonesian Government has announced that during Pelita V (1989-1994), about 1.5 million hectares of degraded forest land would be reforested through the Industrial Forestry Program (HTI).

Support for reforestation is required in Indonesia. Currently 300 million US dollars is spent annually by

Indonesia to reforest 300,000 hectares, but action at this rate will complete the required task in 60 years and \$20 billion is required. The international community has regarded tropical forests as a global commons due to its effects on climate and air. Therefore, preservation of the forests is repeatedly called on, especially by the developed countries, to save the Earth.

Ironically, developed countries' demands on global resources are much higher per head than Third World countries' including Brazil, Indonesia, and Zaire, which contain the largest areas of world forests.

The UNESCO report says that it is unfair to place the burden for the safekeeping of tropical forests on tropical countries by demanding they cease exploitation and allow their population to remain in poverty for the benefit of a better climate and cleaner air for all, including those in developed countries who have already destroyed their forests and today contribute substantial amounts of polluting gases to the atmosphere.

To deal with it, UNESCO is of the view that urgent efforts must be made to transfer scientific knowledge and environmentally benign technology from developed to developing countries so as to permit the latter to move forward without increasing the serious environmental cost already imposed by existing industrialization.

And fairness requires advanced countries which have contributed the biggest share in global environmental damage to contribute proportionately to costs of forest rehabilitation. Environmental compensation is sought, the report concludes.

## JAPAN

### Nitrogen Oxide Levels Reaches Second Worst Level

OW1812103990 Tokyo KYODO in English 0935 GMT  
18 Dec 90

[Text] Tokyo, Dec. 18 KYODO—The density of nitrogen oxide in the atmosphere over Japan was as high in 1988 and 1989 as it was a decade earlier, the Environment Agency reported Tuesday.

The high levels of nitrogen oxide were caused by an increase in exhaust gas from automobiles and fuel consumption at industrial sites, an agency report on air pollution said.

According to the report, the density of nitrogen oxide in 1989, measured at 22 exhaust gas observation posts near major roads where observation has been conducted since 1971, averaged 0.042 parts per million (ppm). This was the second worst level following the 0.043 ppm of 1978 and 1980. The 1988 density was also 0.042 ppm, the report said.

Fifteen general air pollution examination sites, located away from main roads, recorded an average 0.028 ppm.

Air pollution by nitrogen oxide had been generally improving since 1985, but this latest report shows it turning worse again.

Among the total 319 exhaust gas observation posts along main roads across the nation, including the 22 posts mentioned above, 106 points—in 14 prefectures and 60 cities, including Tokyo and Osaka—recorded a daily average of over 0.06 ppm on a specific day, placing them in contravention of the agency's standards for nitrogen oxides. This was up from the 95 points which recorded such levels the previous year.

Another report released by the agency the same day said water pollution in rivers, lakes and coastal seas had not improved as much as expected.

### **Paper Association Announces Pollutant Reduction Guidelines**

*OW2012232290 Tokyo KYODO in English 1447 GMT 20 Dec 90*

[Text] Tokyo, Dec. 20 KYODO—The Japan Paper Association on Thursday announced guidelines for pulp makers to considerably restrict the amount of organic chlorine included in waste water at pulp mills.

Dioxin, a dangerous carcinogen (cancer-causing substance), is believed to be generated in the chlorine bleaching process of pulp production.

The guidelines call for the amount of organic chlorine included in waste water generated in the production of one metric ton of pulp to be kept within 1.5 kilograms or less by the end of 1993.

The association also decided to guide pulp makers to switch from chlorine bleaching to oxygen bleaching.

Shortly after high-concentration dioxin was found in October to be contained in fish caught in a river near paper and pulp mills at Kawanoe Paper Production Center in Ehime Prefecture, the association set up a special committee to study countermeasures.

### **C. Itoh, Hughes Subsidiary To Jointly Study Global Warming**

*OW2012080190 Tokyo KYODO in English 0748 GMT 20 Dec 90*

[Text] Tokyo, Dec. 20 KYODO—C. Itoh and Co. said Thursday it has signed a basic agreement with Hughes Aircraft Co. to set up a joint task force to study environmental problems related to global warming.

Officials said the C. Itoh team will work closely with representatives of Hughes Environment Systems Inc., a subsidiary of Hughes Aircraft, and combine their technical know-how and products to develop new sensors, monitoring systems, and measuring equipment.

The new equipment will be used to provide clues to the causes and effects of acid rain, breakdown of the ozone

layer in the upper atmosphere, ocean pollution, and other fields related to the problem of global warming, officials said.

C. Itoh has had a business relationship with Hughes Environment Systems since November 1989.

## **SOUTH KOREA**

### **Kim Tae-chung Seeks Inter-Korean Panel on Environment**

*SK2212005590 Seoul THE KOREA HERALD in English 22 Dec 90 p 2*

[Excerpt] Kim Tae-chung, president of the Party for Peace and Democracy (PPD), will propose the establishment of a committee to discuss ways of promoting mutual cooperation between South and North Korea on environmental issues.

The opposition leader floated the idea during a debate on PPD's position on environmental policies during the 1990s, held at the Press Center in Seoul. The forum was sponsored jointly by the Korean Reporters Club for the Environment and the Korea Journalists' Association.

Kim said he will seek to dispatch a party delegation to Pyongyang to discuss the proposal if the government allows PPD delegates to visit North Korea next April when it will hold an Inter-Parliamentary Union.

He said Mt. Kumgang in the North should be developed in such a manner as to preserve the environment, adding that many East-bloc nations, including North Korea, face a severe environmental problem. But he said he thinks the North is less polluted than the South since the former is less urbanized and industrialized. [passage omitted]

### **Government Crackdown on Polluting Industries Under Way**

*SK1512042590 Seoul THE KOREA TIMES in English 15 Dec 90 p 3*

[Text] A total of 1,147 companies across the nation have violated environment-related laws by discharging toxic industrial waste without proper treatment, the Environment Ministry said yesterday.

The announcement came after the ministry launched an inspection of 8,368 pollution-emitting factories throughout the nation from Oct. 13 to Nov. 30.

The special crackdowns were designed to root out environment-related crimes after President No Tae-u declared a war on crime, a spokesman said.

He said that 5,462 officials from 40 crackdown squads from the ministry headquarters and others from the ministry's local offices attended the inspection.

The Namhae Chemical Corporation in Yochon, Chollanam-to, and 145 other companies were ordered to suspend their factory operation for discharging industrial waste without treatment, the ministry said.

Namhae, a fertilizer manufacturing firm, was accused of polluting the Kwangyang Bay by discharging 120 cubic meters of waste water daily, it said.

The firm has been accused by the ministry twice in the past for illegally discharging toxic waste, but turned a deaf ear to the ministry order.

The ministry told the Hyundai Electrical Engineering Co. in Ulsan, Kyongsangnam-to, and another 301 factories to suspend operation for setting up unauthorized waste treatment facilities.

A total of 356 factories, including the Oriental Chemical Industry Co. in Inchon, were instructed to repair their waste treatment facilities for discharging toxic waste exceeding the permissible level, the ministry said.

Meanwhile, 112 factories, including a factory of the Han Woo Co. in Taejon, were reported to law-enforcement authorities for failing to properly dispose of industrial waste, it said.

## LAOS

### Minister Reports Measures To Preserve Environment

BK2912102890 Vientiane KPL in English 0904 GMT  
29 Dec 90

[Text] Vientiane, Dec. 29 (KPL)—Considering that the national forest is now in an alarming state due to extensive slash-and-burn cultivation practices and timber extraction, the government has adopted urgent measures to redress the situation through arranging fixed engagement for people of about 253,000 families who still live on shift farming, hence ravaging not less than 300,000 hectares of forest areas a year.

Deputy Minister of Agriculture and Forestry Khamouan Boupha yesterday told the local mass-media men of the effort to secure the national forest and environment, involving allocating new cultivated land, and reforestation. The local administrations are responsible for determining the scope of management, protection and rehabilitation.

He stressed that people or business investors are offered to use these land areas and to practise the reforestation which the state recognised their ownership. He also talked about the inventory of the forest and working out of specific projects.

## TAIWAN

### 1991 Slated as National Year of Environmental Protection

OW3112114590 Taipei CNA in English 1058 GMT  
31 Dec 90

[Text] Taipei, Dec. 31 (CNA)—Vice Chairman Frank Li of the Environmental Protection Administration (EPA) said Monday that 1991 will be a year of environmental protection. EPA will start some 68 environmental projects with a budget of 289.8 billion new Taiwan dollars under the 1991-[word indistinct] National Development Plan.

According to Li, the administration will focus on 10 important areas in the future: river cleaning sewage processing, hog raising sewage processing, factory sewage processing, automobiles and motorcycles exhaust control, factory exhaust control, chemical waste processing, general waste processing, garbage collection system, and environmental monitoring.

He predicted work on environmental protection to peak around 1994 and help promote environmental protection industry.

A study made by Industrial Technology Research Institute showed that environmental industry will be one of the fastest growing industries in the next 10 years, with growth up to 20 percent yearly, second only to aerospace industry.

Li pointed out that such products as small incinerator, automatic air cleaning testing facilities, hazardous waste storage tanks, and sewage water disposal facilities, and automatic monitoring system to clean water will be in great demand.

## THAILAND

### Central Bank Warning on Causes of Deforestation

BK2812141090 Bangkok THE NATION in English  
28 Dec 90 p A1

[Text] The country's economic growth will eventually come to a halt unless the government acts now to tackle seriously the chronic problems of uneven distribution of wealth and rapid environmental degeneration, the Bank of Thailand warned yesterday.

Wichit Suphinit, the central bank governor, urged the government to improve the education of the farming populace and invest more in improving public health services for them as the fundamental ways of solving the two problems.

The rapid economic restructuring which has boosted the importance of the industrial sector above the agricultural one has left the farming population behind and these large group of low-income people are finding it difficult to adapt themselves to the new lifestyle, he said.

The farmers need more education, otherwise they would turn to the easy but damaging way of encroaching upon national forests to try to sustain their incomes and make a living, he said.

"This is a very fundamental problem which the government must start tackling now, otherwise the environmental problem would become too serious and tangled up to solve easily in the future," he warned.

At present, only 40 percent of the farming population graduate from primary schools (Pathom Suksa) compared to 67 percent in Indonesia, which is now at the same stage of development and economic level as Thailand, he said.

Better public health services for the farming population would enable them to adjust easily to new economic and social ways of life, he said.

On its part, the bank will play supportive roles by introducing monetary measures which would help promote equal distribution of incomes to the poor, he said.

The bank will also extend more credit to the Bank of Agriculture and Agricultural Cooperatives (BAAC) to help increase its efficiency in helping the farming population, Wichit said.

In addition, the Industrial Finance of Thailand, a tool of the Finance Ministry to promote industries, would also join in the efforts by supporting cottage industries in rural areas with training programmes on financial planning and management, he said.

The points were made as the government reportedly prepared to deliver a government policy statement to Parliament on Jan 9. In the draft statement, informed sources said, the Chatchai II Cabinet would single out as its priority areas the distribution of incomes, sustaining economic growth and maintaining economic stability.

With only a year and eight months left in office, critics doubt that the government can do much in solving the two chronic problems of unequal distribution of incomes and rapid destruction of forests.

## VIETNAM

### SRV-USSR Seminar on Oceanological Meteohydrology

*BK1812111490 Hanoi VNA in English 0711 GMT  
18 Dec 90*

[Text] Hanoi VNA Dec 18—A seminar on oceanological meteohydrology was held in the port city of Haiphong recently in the framework of the Vietnam-USSR programme for meteohydrological cooperation.

Twenty-six scientific papers, including 11 interventions by Soviet scientists, were presented at the seminar. Since 1988, Soviet and Vietnamese researchers have made four joint surveys on Vietnam's continental shelf to collect data on meteohydrological characteristics and water contamination in the country's territorial waters. So far 210 gauging stations, many of them automatically controlled, have been installed in Vietnam's continental shelf with Soviet assistance.



## REGIONAL AFFAIRS

### East European Environment Center Opens in Budapest

91MI0022A Bonn TECHNOLOGIE-NACHRICHTEN  
MANAGEMENT-INFORMATIONEN in German  
26 Sep 90 pp 18-19

[Text] On 6 September, EC Commission representatives, the EC environment ministers, representatives of major American and East European environment organizations, and members of university and financial circles took part in the opening of the new pan-regional environment center for East Europe in Budapest.

The center will be a nongovernmental organization providing a public service, the first multilateral confederation of its kind on the environment. It will be managed by a 15-member international committee made up of representatives from the EC, the United States, and East Europe. The center will have an initial budget of \$10 million, of which the EC has contributed 2 million European Currency Units [ECU], the balance being borne by the U.S. and a number of other states.

The catastrophic condition of the environment in this region became clear at the meeting that the EC environment ministers held with their East European counterparts in Dublin on 21 April 1990. Air, water, and ground pollution exceeds all acceptable limits.

The European Community has already shown its willingness to help by contributing a considerable share (ECU 48 million) of the aid fund for the emerging democracies under the PHARE [Poland-Hungary: Assistance To Restructure the Economies] program. The program was initially limited to Poland and Hungary, but was subsequently extended to cover other East European countries as well. Finally, as soon as the European Environment Agency starts work, which it is scheduled to do this year, it will keep close permanent contact with the center in Hungary.

### CSFR, Hungarian Officials Discuss Gabčíkovo Water Barrage System

LD1712130590 Budapest MTI in English 1037 GMT  
17 Dec 90

[Text] Bratislava, December 17 (MTI)—One of the leaders of the Hungarian environment protection organization Danube Circle, Janos Vargha, met Minister of Environment Protection of the Federal government of Czechoslovakia Josef Vavrousek in Bratislava during the weekend.

The two sides discussed issues concerning the Bos (Gabčíkovo) - Nagymaros water barrage system.

In Vavrousek's opinion, all possibilities must be discussed, including the elimination of the barrage system. He mentioned the possibility of a partial test operation

of the system, to be stopped immediately if deterioration of the environment is observed.

Vargha said this version posed too much risk and stated that according to the opinion of the Danube Circle there was no better solution than the elimination of the barrage system.

The two sides agreed that conditions, advantages and costs of the elimination should be studied carefully in the coming months.

### CSFR's Vavrousek on Discord With Slovak Government on Gabčíkovo

AU1912175290 Bratislava NARODNA OBRODA  
in Slovak 17 Dec 90 pp 1-2

[CTK report: "Questions of General Interest"]

[Excerpts] Bratislava— Current problems of the protection and enhancement of the environment were discussed at a meeting of Slovak environmentalists in Bratislava on Saturday. [passage omitted]

The most burning issues concerned the Gabčíkovo-Nagymaros Dam system on the Danube [SVD] and the High Tatra. Josef Vavrousek, federal minister for the environment, said about the SVD: "We have agreed with the Hungarian side to ask the EC for help. For the [EC] commission to work out its expert's report, however, there must be understanding between the Slovak and Hungarian sides. The experts need information from them. As far back as September, following an agreement with Slovak Deputy Premier Vladimir Ondrus, we formulated a draft resolution of the Federal Government on ways of dealing with the situation. The Slovak government did not endorse this resolution, however. The important thing is to find a reasonable solution, to get rid of extreme positions on both sides. The Hungarians have great economic losses while in our country great ecological losses are involved. It is necessary to set up an international working group and to deal with the situation urgently and responsibly." [passage omitted on Vavrousek's comments on nuclear safety issues, covered by referent item]

### Hungarian Government Debates Nagymaros Dam Project

LD2112123790 Budapest Domestic Service  
in Hungarian 1100 GMT 21 Dec 90

[Report by correspondent Gabor Bankuti on Hungarian Government spokesman Balazs Laszlo's news conference in Budapest on 21 December]

[Excerpts] [passage omitted] At its session yesterday, the government discussed issues related to the fate of the Boes-Nagymaros Dam. It established that the Hungarian-Czechoslovak agreement on the dam system was an erroneous decision from both an environmental protection and an economic viewpoint, and for this reason it

agrees with the decision of the previous government to suspend it. The minister of environmental protection and the government commissioner were authorized to conduct a thorough investigation of the proposals of the Czech and the Slovak organs and to hold talks with them on the basis of this. The government must be informed of the results by the end of June, and the government is preparing a report for parliament on the measures.

Gyoergy Samsondi-Kiss, government commissioner, stated that the government sought a solution with the Czech and Slovak republics which would be exemplary also in that it did not turn an environmental protection issue into a nationality issue, and in that it interpreted nature protection in this manner. We are ready for flexible talks, and we should like to speed these up. The Czech and Slovak side had prepared five accurate versions on the matter of the Boes power station from the realization of the plans in an unaltered manner to its complete demolition. Thus, we wish to examine the combined environmental and material impact of all of them. For us, the protection of drinking water supplies is most important, the government commissioner said.

Soon, bids will be made on restoration of Nagymaros, including development of the Danube region. Navigation on the Danube could be resolved without the dam, too.

#### **Hungarian Water Affairs Minister on Stopping Bos-Nagymaros Dam**

*AU2312210790 Budapest NEPSZABADSAG  
in Hungarian 18 Dec 90 p 5*

[Interview with Csaba Siklos, Minister for Water Affairs, by Gyula Fejer; place and date not given: "We Will Not Build Bos-Nagymaros"—first paragraph is NEPSZABADSAG introduction]

[Excerpt] A division was recently made between the local organizations—the so-called Kovizigs [name as published]—of the former Ministry for Environmental Protection and Water Affairs, and the relevant directing bodies which have now also been set up. The third branch of the Ministry of Transportation, Telecommunications, and Water Affairs has been able to start operating. We spoke to Csaba Siklos about the steps that led to the reorganization, and about the ministry's new tasks.

[Fejer] It is ironic that the person in charge of the country's water affairs happens to be a man who repeatedly argued against the Bos-Nagymaros project at a time when it was fashionable to acquiesce. Do you not see the extension of your sphere of authority as a suicidal undertaking?

[Siklos] No, I do not see this as a suicidal step. First of all, my opinion about Bos-Nagymaros has not changed one bit. Second, there were times when the country was proud of the people in charge of our water affairs: for example, at the time of the great floods in the Danube basin, 25 years ago, or at the time of the floods by the Tisza River, 20 years ago. However, nowadays, there is

hardly anyone who does not associate water affairs with the aforementioned barrage, also known as Danosaur (as in the dinosaur of the Danube). Many people are even prepared to project all the hatred caused by a mistaken political decision onto this historically renowned profession. Naturally, it is always easier to find a scapegoat than to clarify facts.

[Fejer] In that case, let us try to clarify these facts! What made the government unite water affairs, transportation, and telecommunications under one ministry; surely not the fact that transportation can also take place on water?

[Siklos] That is also an argument, albeit not a decisive one. The decision basically came about because the government wanted to put the whole infrastructure into one basket; in that way, shortfalls can be controlled more easily. Nor was it negligible that, in this way, water management—as part of our production infrastructure—could be closely linked to the range of duties of the transportation and telecommunications branches. Incidentally, cooperation between these three branches was also positive before this unification.

[Fejer] You see navigation as a secondary argument influencing the government's decision. However, environmentalists claim that the government wants to smuggle back Nagymaros under the pretext of improving navigation conditions.

[Siklos] No matter how important navigation might be, ecological interests definitely come first. Several of our foreign partners have pointed out that an intervention would be preferable in order to make better use of international waterways. Every time they mention this, we turn a deaf ear. The government has already declared its intentions, and I can only repeat that we will not build Nagymaros.

[Fejer] Nor have you done anything about the destroyed landscape, so far!

[Siklos] Oh yes, we have, but these things do not happen overnight. We cannot recreate the original conditions without plans, and there are no plans yet. Allow me to add—although this does not come under the sphere of authority of our ministry—that competent people will start with their work in this area in 1992. [passage omitted]

## **BULGARIA**

#### **Draining of Contaminated Topolnitsa Dam Waters Started**

*AU1712150590 Sofia DUMA in Bulgarian 12 Dec 90 p 1*

[Yuriy Popov report]

[Excerpts] Permission has been given to begin draining the waters of the Topolnitsa Dam, which are threatening to spill over the dam wall. This was announced by

Branimir Natov, chief of the Waters Department at the Ministry of the Environment, at a meeting with journalists on 11 December.

In fulfillment of the resolution adopted by the Grand National Assembly in August, the production of the "G. Damyanov" Copper Mining Combine was shut down until the effluent waters, which contain arsenic in amounts below the permissible concentrations, are made safe. Measurements made on 6 December showed that the arsenic concentration at the entry to the reservoir was 0.01 milligrams per liter, and at the outlet it was 0.10 milligrams, while the maximum permissible concentration is 0.20 milligrams. According to EC standards, the permissible concentration is 0.50 milligrams per liter. [passage omitted]

From today the draining begins of small amounts of water, which will drive two of the three turbines at the Topolnitsa Hydroelectric Power Plant. These have not operated for a long time, and the generators need to be dried. It can be expected that from Friday up to 10 cubic meters of water per second will start to flow out of the reservoir, which will be enough to operate the two turbines, each of which has a capacity of 7.4 megawatts.

According to the project, at the end of January and during February work will start on treating the waters in the Topolnitsa Reservoir with ferrous hydroxides, which will form a kind of film on the bottom, creating a barrier against a further spread of the arsenic still remaining in the sediment.

#### **Claims of Higher Radiation Levels Dismissed**

*AU2212150690 Sofia BTA in English 1355 GMT  
22 Dec 90*

[Text] Sofia, December 22 (BTA)—The level of radiation in Bulgaria is absolutely unchanged, said the Ministry of the Environment, dismissing the allegations to the contrary of foreign media. The ministry says that its information is based on a coordinated effort of several ministries and research institutes in the country which switched on their radiological control equipment on the night of December 21 to 22.

#### **President's Expert Asked About Kozloduy Nuclear Plant**

*AU2912182990 Sofia VECHERNI NOVINI  
in Bulgarian 23 Dec 90 p 1*

[Interview with Professor Dr. Tsvetan Bonchev, chairman of the Commission on Nuclear Power Matters under the Presidency and director of the Nuclear Physics Department at Sofia University, by Nina Mishkova; date and place not given: "Anything New at the Kozloduy Nuclear Power Plant?"]

[Text] [Mishkova] Professor Bonchev, as deputy chairman of the National Radiation Protection Program, last May you took part in a comprehensive inspection of

the Kozloduy Nuclear Power Plant. You publicized the alarming facts which emerged and also presented them to parliament. What guarantee is there that the next highest inspection authority, although appointed by the president, will not limit its functions to the usual conclusions on paper?

[Bonchev] The previous inspections and checks were carried out by bodies connected with the executive power and dependent on it. Our commission includes scientists who have no official connection with the Kozloduy Nuclear Power Plant. They are genuinely independent. We have set up 10 working groups on various aspects, and have tried to attract our best specialists to work in them. These groups are now hard at work. Nine of our experts visited the Kozloduy Nuclear Plant from 12 to 17 December....

[Mishkova] What sort of welcome did they receive from the management there?

[Bonchev] The management showed understanding. Our group familiarized themselves in detail with some of the sections of the power generating units, both the VVER-440 reactors, which have been in operation for a long time, and the new site—the Nos. 5 and 6 units. We talked to many people and gathered a vast amount of information, but so far have only managed to "digest" part of it. On this basis we prepared an analysis of the problems which we considered especially important. At the moment we have drafted solutions which are mainly of an organizational nature. Most of these do not require a lot of money and can help in predicting certain problems, including those with economic implications. We have already sent this material to the Kozloduy Nuclear Power Plant. We will go there again in order to discuss our findings with the specialists. After the findings have been agreed, they will be presented as an official document to the President's Office....

[Mishkova] Would you give us one example of your recommendations?

[Bonchev] Now, when foreign currency funds are expected to be allocated to the nuclear power industry in the form of aid, the negotiations with foreign companies should take place with the participation of highly qualified specialists employed in running the generating units. Why should they not take place at the Kozloduy site? Until now, the policy and future of the power plant was "hammered out" in the upper administrative echelons, and perhaps for this reason they failed to be implemented at the local level....

[Mishkova] How do you regard the future of the Kozloduy Nuclear Power Plant?

[Bonchev] With optimism, provided that measures are quickly taken to modernize certain systems, particularly in the old generating units. Even more important,

normal working and living conditions must be created without any delay for the people who produce about 35 percent of our electric power. Safe nuclear power is expensive and requires investments, and the Kozloduy plant is the last place where the state budget should save money.

[Mishkova] Can we return to the question of guarantees?

[Bonchev] These are provided by the Presidency, which has sought help from a commission of independent experts, as well as by the awareness that we stand on the edge of an abyss.

## CZECHOSLOVAKIA

### Greenpeace Wants Immediate Closure of MAPE Uranium Plant

*AU1412175090 Prague CTK in English 1939 GMT  
12 Dec 90*

[Text] Prague Dec 12 (CTK)—Members of the Austrian branch of the international ecological organization Greenpeace told journalists here today that the alarming findings they made during their activity of several months in Czechoslovakia lead them to recommend the immediate closure of the MAPE plant at Mydlovary, south Bohemia.

MAPE is a uranium industry chemical processing plant whose activity has had alarming negative impact on its surroundings, according to Greenpeace activists.

They recalled at the press conference their earlier information about radioactivity surpassing the range of their measuring instrument at some places near MAPE, about several ecological disasters in the plant in the past whose consequences are still traceable, and others.

The ecologists supported their claims by a film document, photographs, polluted samples, evidence of an expert who conducted measurements at MAPE, etc.

Greenpeace drew attention to the situation at MAPE already earlier this year, but its assertions were dismissed by representatives of the plant and other responsible officials as ungrounded.

Last month, a forgotten radioactive waste dump was unearthed near the plant. Though the radioactivity is high there, experts said it does not pose any danger to its vicinity.

An official of the Czech Environment Ministry today appreciated the Greenpeace initiative and said that the findings made thus far should not rouse fear of a general danger.

However, the Austrian Greenpeace activists hold the view that radiation in adjacent regions cannot be ruled out for several generations to come.

According to them, MAPE is not the worst of its kind in Czechoslovakia, and therefore Greenpeace wants to continue to give attention to the country in this respect.

### Cleanup of Nuclear Power Plant Contamination Discussed

*LD1612220190 Prague Television Service in Czech  
1830 GMT 16 Dec 90*

[Text] This is the canal through which the waste water from the V-1 bloc of the closed-down A1 unit of the nuclear power station at Jaslovské Bohunice flows out. Increased concentrations of plutonium and americium have been discovered, however, in the sediment of the Dudvah River into which the canal empties. Even if the results of an analysis do not exceed valid international norms, the concentration discovered is about 20 times higher than the usual amount of radioactivity under normal conditions.

Precisely this information about the Dudvah contamination published in newspapers this week was the immediate cause of yesterday's visit by Josef Vavroušek, Czechoslovak government minister and chairman of the federal environment committee, who on Thursday set up a working group to investigate the information and to propose any necessary measures, including decontamination of the A unit at Jaslovské Bohunice.

[Begin Vavroušek recording] I consider it my natural duty to come here and see the situation for myself, and at the same time to talk to the plant's manager and the health and safety officer in charge in order to inform them that their employees will participate in the working group, so that people are well informed, and so that a solution can be found as soon as possible.

I think, and I would like to repeat this, that citizens are under no immediate threat. The contaminated places will be marked in such a way that it will be clear to people who do not live here that they should avoid those places. A solution will be found as soon as possible to eliminate these sediments and store them securely so that they do not damage the environment somewhere else. [end recording]

At the meeting with the management of the nuclear plant and employees of the district health and safety office, agreement was reached that the liquidation of the closed-down A1 unit—which due to an accident has not been working for 14 years, though it still remains a potential source of contamination—has to be implemented as soon as possible.

Among other things discussed was also the need to build a new cleansing unit for waste water, and the unjustified campaign in the Austrian mass media aimed at the immediate closure of the V1 station.

### **Commission Set Up To Investigate Jaslovské Bohunice Plant**

*AU1712134790 Prague CTK in English 2244 GMT  
13 Dec 90*

[Text] Prague Dec 13 (CTK)—Czechoslovak Minister-Chairman of the Federal Environment Committee Josef Vavrousek today set up a commission charged with detailed investigation of the situation in the nuclear power plant at Jaslovské Bohunice, west Slovakia, where two accidents occurred in 1976 and 1977.

In the first mishap, carbon dioxide leaked in fuel exchange, taking the toll of two lives. One year later, a certain quantity of heavy water leaked into the cooling circuit when a pressure channel was damaged. No casualty was inflicted.

The commission, set up by the minister together with Chairman of the Czechoslovak Commission for Nuclear Power Karel Wagner and Deputy Economics Minister Jan Jicha on the basis of a report on the finding of traces of plutonium in the sediment of the Dudvah River, is to quickly work out necessary decontamination measures. A press conference on the matter is scheduled in Prague for December 17.

The Jaslovské Bohunice plant of the outdated soviet V-1 type is Czechoslovakia's oldest nuclear plant which went into full operation in 1972. It has two units of an aggregate output of 1,760 MW. Another Czechoslovak nuclear plant is at Dukovany, south Moravia, and two more are being built at Mochovce, west Slovakia, and at Temelin, south Bohemia.

In Vienna today, Austrian Chancellor Franz Vranitzky favored closure of the Jaslovské Bohunice plant after a 30-member group of experts from Austria, Germany, Switzerland, and Yugoslavia submitted him a preliminary study on operational safety of the plant which it studied since last August. Jaslovské Bohunice is situated a mere 55 kilometers from the Czechoslovak-Austrian border.

### **Environment Minister on Bohunice Nuclear Plant, Other Projects**

*AU2012123990 Bratislava PRAVDA in Slovak  
17 Dec 90 pp 1, 3*

[Interview with Josef Vavrousek, CSFR minister-chairman of the Federal Environment Committee for the Environment, by Lubo Rabay, PRAVDA correspondent; no place and date given: "No Reason To Panic"—first paragraph is PRAVDA introduction]

[Text] There was an accident at the first Czechoslovak nuclear power plant in Jaslovské Bohunice A-1 in 1977. At that time, it was condemned as a failed experiment and just about forgotten. It was not "acceptable" to recall this failure. Nonetheless, nuclear waste is still stored there (its transport to the USSR is to be completed in 1992). The concrete conglomerate contains several

centers with different degrees of contamination. The situation really must be dealt with in a more decisive manner. Minister Josef Vavrousek, chairman of the Federal Committee for the Environment, does not believe, however, that the plant is a Slovak Chernobyl. He visited the Jaslovské Bohunice Power Plant complex on Saturday (and even expressed doubts that the aftermath of Chernobyl really is such as it is depicted). On that occasion, we asked him several questions.

[Rabay] Recently, preliminary data appeared in the press from a study of the surroundings of the A-1 power plant—demonstrating a high content of plutonium and americium in the sediment of the nearby River Dudvah, which is connected with the power plant complex by a canal. Although the readings do not exceed the international limits, the quantity is approximately 20 times higher than the ordinary presence in nature....

[Vavrousek] Really, no threat of immediate danger exists. We do not want to paint the situation black but we cannot make it rosy either. It is our duty to check the facts and find a solution. Already on Thursday [13 December], after the defense of the research study on the elimination of the A-1 bloc, we reached a consensus with the Czechoslovak Atomic Commission chairman on forming a task group. It should analyze the situation and propose measures. I considered it my duty to get acquainted with the situation directly on the spot. I also asked the management of the power plant and the district health officer to participate in the work of the task group and ensure a proper exchange of information and rapid proceeding. The centers of contamination will be marked in order to make even strangers to the area aware that he is not to frequent that area.

[Rabay] In the discussion with the management, you promised assistance by the Federal Commission; for instance, the possibility of arranging through the European Community the technical basis for the elimination of the A-1 plant. You have also promised to "push" for a decision on building a sewage treatment plant, needed here for a long time....

[Vavrousek] A sewage treatment plant is absolutely essential, not only because of the elimination of the A-1 power plant but also for the continuing operation of the plants V-1 and V-2. I hope that this topical information regarding the actual danger will speed up the decision on funding. After all it really is a matter of money.

[Rabay] Last Wednesday [12 December] a group of Austrian experts completed its investigations of the V-1 plant at the request of their government. Already on Thursday, Austrian Chancellor Franz Vranitzky asserted, on the basis of the preliminary results, that he would try to effect an immediate halt of the power plant's operation. What do you think of that?

[Vavrousek] We know of the V-1 power plant that it lies in the estuary of a seismic field. The project truly does not correspond to present-day knowledge and safety



criteria. I am convinced, however—and so far the Austrian side has not submitted any new facts to demonstrate the contrary—that the actual danger presented by this power plant does not exceed the limits of an acceptable risk posed by any nuclear power plant as such. We, too, are waiting for the promised report of more than 700 pages prepared by the Austrian experts. I am afraid, however, that the report is not very reliable, and that neither the Austrian media nor the authorities will support this radical demand with sufficient documentation. We are in the process of completing a detailed report summarizing the results of all former expert studies concerning this plant. It will be submitted to the Slovak Government and to the Czech and Slovak Federal Government for the final decision at the beginning of January. One can say already now that, still for a certain, relatively short period of time, the power plant will be able to operate without an increased risk. There is no way, however, that it would reach its projected lifetime of 25 to 30 years.

[Rabay] Recently, at the time of the power-sharing controversies, Slovak Premier Vladimir Meciar included you together with three other representatives of the Federal Government on his "black list." You were surprised by your "membership"....

[Vavrousek] I, too, believe that it was unfair. I feel responsible for the environment in the entire CSFR, not only in Prague, where I was born, or in Bohemia, because I speak Czech. Everything I do is thoroughly consulted with colleagues in Slovakia—not only with my Slovak counterpart but also with colleague members of ecological movements. In addition, all the time, for five years now, I have been a member of the Slovak Association of the Protectors of Nature and the Countryside. We opposed the Gabčíkovo project together, I had the honor to be the only Czech participating in the publication Bratislava—Aloud. Hence, for my part, it is not simply a case of doing something fashionable.

[Rabay] Is it not so that Vladimir Meciar holds an opposing stand to you on the Gabčíkovo project?

[Vavrousek] Apparently, that is what he had in mind—despite the fact that my stance on the project has not changed substantially over the past three years. I am still convinced, however, that the original project was a very unfortunate one. The official standpoint of the Hungarian Government demanding halt of all work is equally unfortunate. These are two extremes, neither of which is acceptable economically or ecologically. An acceptable variant must be sought—the least evil. Still, the only reasonable one would have been never to have started.

[Rabay] What, in your perception, should be the difference between the powers of the federal and of the national minister for the environment?

[Vavrousek] The difference is fundamental and obvious. The Federal Committee for the Environment should be involved only in tasks, the duplication of which would not be expedient. The principal ecological legislation

should be within its authority. It is supranational: For instance, in the European Community, such legislation is common for 12 countries. Moreover, it should deal with nuclear energy, the general ecological policy of the state, information systems, and international relations in the area of the environment. However, even in these areas we closely cooperate with the national ministries, to whom we do not want to be a superior body but a kind of a coordinating service.

Minister Vavrousek is a relatively frequent guest in Slovakia. This Saturday [15 December] he and his ecology movement colleagues met at what was already the 15th forum of creators and protectors of the environment in Bratislava. He survived without injury, despite the high degree of criticism aimed at the governments. "The dogs bark but the caravan goes on," commented Mikulas Huba, Slovak Association of Protectors of Nature and the Countryside chairman, having the environmentalists in mind when referring to the dogs. The question of environmental legislation being delayed behind the economic legislation was presented particularly strongly at the forum. After all, presented like this, it would become just a formal appendix. The government proposals for next year's budgets were also a cause for complaints because the Gabčíkovo project and Bratislava rapid transit system dominate the list of ecological construction projects. There is no need to add that they will consume most of the funds assigned to ecology. Thus the departments of transport and energy can be happy....

### **Nuclear Industry Official Sees No Reason To Close Bohunice**

*AU2012152190 Prague CTK in English 1331 GMT  
18 Dec 90*

[Text] Bratislava Dec 18 (CTK)—Director of the "Slovak enterprise" Rudolf Kvetan has told CTK that the results of inspections carried out at the Jaslovské Bohunice, west Slovakia, V-1 nuclear power plant do not prompt its immediate closure, but its safety must be raised.

The plant's immediate shut-down was urged by Austrian Chancellor Franz Vranitzky last week on the basis of a preliminary study on its safety made by a group of 30 experts from Austria, Germany, Switzerland and Yugoslavia.

Kvetan said that he has at hand final as well as partial results of inspections by experts, e.g., from the International Atomic Energy Agency (IAEA) and the German firm Siemens. A report is expected soon from a group of Czechoslovak experts who will recommend further steps to be taken by the Federal Government.

The measures proposed by Siemens are economically advantageous and feasible. The firm does not at all propose closure of the Soviet-type plant, the oldest in Czechoslovakia, put into operation in the 1970's, Kvetan said.

According to the top U.S. firm Westinghouse, power plants of this type can be operated until the end of their service life, which is in the year 2005 in the case of the V-1 plant, but at the cost of extensive and highly cost-intensive adjustments, Rudolf Kvetan said.

He added that other firms will be asked to inspect the V-1 plant so that it be constantly monitored. It will work until its further operation is challenged.

Though Kvetan admitted that the shut-down of the V-1 plant would complicate Czechoslovakia's energy supply, he ruled out the possibility that the future of the plant could be influenced by the situation in energy supplies. Safety will be the only criterion, Kvetan added.

### **Slovak Prime Minister on Plans for Bohunice Nuclear Plant**

AU2712114590 Vienna DIE PRESSE in German  
21 Dec 90 p 5

[Interview with Slovak Prime Minister Vladimir Meciar by Hubert Margl; place and date not given: "Austria's Help Would Be Symbolic"]

[Text] [Margl] Prime Minister, a group of Austrian experts has made a devastating assessment of the Slovak nuclear power plant in Bohunice. What is your attitude toward Chancellor Vranitzky's demand to close down the plant, located only 55 km from the Austrian-CSFR border, immediately?

[Meciar] For the Slovak Republic, which will have independent authority for its nuclear power plants as of 1 January, the safety of its own population is the most important thing. Four international inspections were made in Bohunice, but only the commission from Austria proposes to close down the plant.

It is certain that the planned period of operation of the power plant will not be exploited to the full. The plant will be permanently checked by at least three institutions as of now. As soon as an immediate threat to the life and health of the population develops, the plant will be closed down.

However, this cannot be done from one day to the next. First, the question of substitute resources for electrical energy must be solved.

[Margl] Chancellor Vranitzky did promise help with deliveries of electricity.

[Meciar] Even though Austria is offering help, it has problems itself with its electricity facilities and transport. Austria's help would be more symbolic than real.

I believe that our two countries should be interested in the completion of the Gabčíkovo-Nagymaros power plant on the Danube. There is goodwill on the Slovak side. The problems are situated in Hungary. For us it is

important that this hydropower plant is completed. By doing so we could establish substitute sources of electricity.

[Margl] Does this mean that Bohunice could be closed down if Gabčíkovo is put into operation?

[Meciar] No. Substitute supplies could merely accelerate the decision on closing down Bohunice. However, if the situation there deteriorates before Gabčíkovo is completed, it is clear that we have to close down Bohunice. Safety has priority for us.

[Margl] What is the originally planned period of operation of the power plant?

[Meciar] According to experts, Bohunice could be operated for another three to five years.

[Margl] If you closed down Bohunice today, would there be an emergency concerning energy in Slovakia?

[Meciar] It must be expected. Even with Bohunice Slovakia has an energy deficit. And this would only increase if the power plant were closed down.

However, if we have to take this measure, we will have to ask for help. And this help does not come free, it is expensive.

[Margl] Do you not expect any help from the EC?

[Meciar] So far Slovakia has paid a relatively high price for Europe. We have closed down our armament industry, because it does not correspond to the new relations between the states. And this fact has not been recognized by Europe.

Now we are requested to limit our energy resources. We will do so, if safety requires it. But we will not do so on the basis of demands by politicians.

[Margl] Does Slovakia support the expansion of nuclear energy?

[Meciar] Because of the lack of alternatives, we have to focus on nuclear energy, but on totally different types of power plant, namely West European ones.

[Margl] In Austria it has repeatedly been demanded that the CSFR reduce its enormous energy consumption by means of more efficient use of energy.

[Meciar] This is not possible in the short term. We are considering thrift measures. But one needs the appropriate technical equipment to implement them.

Restructuring in Slovakia will be carried out step by step. In view of the transition to the market economy, the conversion from armament to civilian production, and the disintegration of CEMA, should we, in addition, destroy our entire energy sector in order to please others? This would be too high a price for us. We cannot afford a gesture of goodwill.

### Coal-Burning Units Closed Down for Environmental Reasons

AU2812142690 Prague HOSPODARSKE NOVINY  
in Czech 27 Dec 90 p 2

[CTK report in the "Briefly" column]

[Text] The 100 megawatt unit No. 7 of the Tisova Power Station in Sokolov District was put out of operation Saturday [22 December] night, on the basis of a CSFR Government decision. Another unit will be put out of service on 31 December. This will significantly contribute to improving the environment in Sokolov, Cheb, and Karlovy Vary Districts.

## HUNGARY

### Environment Minister on Ministerial Conflicts, Nagymaros

AU1712145990 Budapest NEPSZABADSAG  
in Hungarian 12 Dec 90 p 7

[Interview with Sandor K. Keresztes, Minister for Environmental Issues, by Agnes Federer; place and date not given: "In Principle, Every Minister Can Expect Dismissal"—first paragraph is NEPSZABADSAG introduction]

[Text] In recent times, few ministers have been criticized as fiercely as Sandor Keresztes. That is why we called him to account in public. We also asked him to tell us how he envisaged the future.

[Federer] Mr. Keresztes, how have your last few months been?

[Keresztes] They have been difficult. In principle, it was easy to see what had to be created or changed, but I did not foresee that these measures would upset the prestige of so many people, or that so many people would be hurt. Furthermore, I was completely surprised to find that there was such a complicated system of lobbying in the field of environmental protection and nature protection, although it is true that I was not familiar with every aspect of this field. Therefore, I can say that I stirred up a hornet's nest. I thought that we would be able to start off with a new ministry by September; now, I would be happy if we could actually start working on 1 January.

[Federer] Perhaps that is the reason why many people think that Hungary has not progressed one inch in the area of environmental protection....

[Keresztes] That remark is correct, because during the restructuring phase, the ministry did little professional work at all. That was not because the minister and the experts employed here are incapable of working, but because we have to build the engine first, so that the machinery can start running.

[Federer] Almost everyone objected to the previous structure of the ministry, where water affairs were linked

to environmental protection. What do you think of the ministry's current structure?

[Keresztes] I would like to dispel a misunderstanding: It was not the building industry that was brought into this ministry, but the management of housing and construction planning. In other words, the ministry will decide how our towns, squares, and environment will look, a decision that was always taken by environmentalists. This new structure is preferable in every way.

[Federer] If we were to mention the Danube, then we would immediately think of the Bos-Nagymaros project. What could you do in order to speed up the handling of this case?

[Keresztes] Unfortunately, negotiations have come to a deadlock at a government commissioner level; a stalemate developed with the Czechoslovak side a long time ago. The reason for this is that Czechoslovakia has not reached a final decision on the future of the Bos project. At this stage, we can do nothing but wait, and prepare for negotiations. Many people do not realize how dangerous that is. If there is a flood wave in spring, the Nagymaros dam could be washed away. That section of the Danube would become unnavigable.

[Federer] Gyorgy Szanto, the head of the government commissioner's secretariat for the Danube water barrage, was recently dismissed. At the time, he stated that there were serious conceptual differences between the two of you on this issue. What is the actual truth?

[Keresztes] Mr. Szanto is very much responsible for the fact that, so far, no reasonable proposal has been submitted on how we could calmly close this issue. Mr. Szanto presented a brilliant analysis of the mistakes made by the firm Oviber, but he did not do much else. Incidentally, nobody in Hungary would dare to elaborate some kind of a compromise solution, because they would immediately be labelled a traitor. We can refuse to build Nagymaros, but we cannot demolish Bos, if you see what I mean. We have to negotiate; in fact, we have to negotiate urgently. There is no guarantee, either, that the environment can be perfectly restored in the area of Nagymaros. Hundreds of environmental studies and ecological estimates are being made, but these studies reveal practically nothing.

[Federer] In recent times, the atmosphere has turned quite sour around you. For example, Andras Janosi, who was mentioned in the press as your personal adviser, has resigned.

[Keresztes] When I took up office, Janosi volunteered to help me with his calculations and estimates, particularly in the case of the Bos-Nagymaros project. Janosi is a man of good intentions, a "fanatic," a man who knows a lot, and who has been on leave without pay for a year in order to devote all his time to his studies. He has provided us with a lot of information, but he did overstep the mark a little bit. For example, he delivered a speech in my name in front of Parliament's expert

committee—he had no authorization to do so—he wanted to look into secret documents, and when we made a decision that did not suit him, he “resigned.” That was how our ways parted, but we agreed that we would still be pleased to accept his proposals in future, of course.

[Federer] It has also been rumored that the national environmental committee of the Hungarian Democratic Forum has submitted a no-confidence motion against you.

[Keresztes] Well, yes, they have prepared a memo in which they object to the agreement that we have reached with the Ministry for Water Affairs. They see this agreement as disadvantageous for us. This memo also says that “this affair will have personal repercussions.”

[Federer] After all that, what chances do you think you will stand when the government is reshuffled?

[Keresztes] In principle, every minister can expect dismissal. For now, I will continue to go about my business, and we will soon find out what the decision is....

## POLAND

### Belgium Grants Environmental Aid to Poland

91AN0030A Newbury EAST EUROPEAN ALERT  
in English 27 Sep 90 p 20

[Abstract of article published in Brussels L'ECHO DE LA BOURSE in French 13 Sep 90 p 2: “Poland/Belgium: Environmental Cooperation Decided”]

[Text] Belgium has made a cooperation agreement with Poland in the area of training of environmental protection specialists, environmental technology transfer and pollution detection, as part of 37 million Belgian francs in aid. Belgium will give Poland a mobile lab for atmospheric pollution detection, another lab for monitoring surface water quality, and three pieces of equipment for measuring the content of heavy metals in the air. The aid may pave the way for private Belgian investments in

Poland. Poland has also requested that Belgium help it solve its approximately \$40 billion in foreign debts.

## YUGOSLAVIA

### Krsko Nuclear Plant Said To Be on ‘Earthquake-Sensitive’ Ground

AU3012185590 Belgrade POLITIKA in Serbo-Croatian  
13 Dec 90 p 9

[TANJUG report: “Krsko Built in Earthquake-Sensitive Area”]

[Text] Ljubljana, 12 Dec—The Krsko Nuclear Power Plant has been built in a risky, earthquake-sensitive region. According to the claims of Professor Stanko Buser from Ljubljana which were presented at today's session of the commission of the Assembly of the Republic of Slovenia for investigating the circumstances surrounding the construction of Krsko, a so-called seismic fracture [prelomnica] stretches only 700 meters away from Krsko. If it were to move, Buser says, it could seriously undermine the power plant which, as he particularly stressed, “is a political construction whose foundation stone was laid before the ground was investigated or any vital geological finding was given.”

Dr. Buser also offered his scientific-investigative indicators for experts to look at, repeating his conviction that “considering the seismological uncertainty of the area, the power plant itself cannot be totally secure either.” As one of the more reliable indicators of the instability of the ground, he cited the visible changes in the flow of the Sava River in this area.

The Executive Council of the Assembly of the Republic of Slovenia has accepted the initiative of Professor Stanko Buser for a special commission to be set up to examine the seismological safety of the Krsko Nuclear Power Plant. The commission will also seek an answer to the question of whether all geological conditions were investigated in sufficient detail during preparations for and the beginning of construction of the power plant.

## REGIONAL AFFAIRS

**Caricom To Seek Aid at 1992 Environment Conference***FL2212155090 Bridgetown CANA in English  
1508 GMT 22 Dec 90*

[Text] Castries, St. Lucia, Dec 22, CANA—Caribbean Community (Caricom) countries will be seeking special assistance at an international conference on the environment in Brazil in 1992, the director of the Caribbean Environmental Health Institute [CEHI], Dr. Naresh Singh, has said here. Singh told reporters that the St. Lucia based CEHI and Trinidad and Tobago were spearheading an initiative aimed at the formation of an Alliance of Small Islands States (AOSIS), a negotiating body which would represent the interest of the region at the UN conference in Brazil.

"We would seek to get a special position for small island states in terms of assistance because of the fact that they contribute least to the problem of climate change, while they are expected to suffer most from this issue," Singh said.

Environmental officials said that the Brazil conference has assumed added importance, when viewed against the information released by the Second World Climate Conference in Geneva last month. At that conference it was reported that the world climate is expected to change by 0.2 to 0.3 degrees Celsius per decade over the next century, if the level of global warming continues at its present rate. Singh said that the impact of the global warming on the Caribbean would result in either sea level rises or a change in the frequency and intensity of storms and rains.

He said AOSIS will endeavour to negotiate for a more equitable transfer of technology within the world. Singh said that the Brazil conference could result in charting a new beginning for environmental issues and a second chance for a new international economic order.

"We would need to look at the resources in the world, the comparative advantages of nations as they proceed to define the objectives for development and meeting the needs of their people," he noted.

He said while in the past developed countries had used policies that "devoured" much of the environment, "they are starting to make requests for a change in the approach to energy use in the developing countries" due mainly to the problems confronting the environment.

## BRAZIL

**Collor Approves Creation of Amazon Forest Centers***PY2212135290 Brasilia Domestic Service in Portuguese  
2100 GMT 17 Dec 90*

[By Luis Augusto Mendonca from Planalto Palace]

[Text] President Fernando Collor has approved a system of forest centers for establishment in the eastern part of

the Amazon Region. Infrastructure Minister Ozires Silva submitted the reasons for creating these areas to Collor today.

The objective of the Amazon Region forest centers [Polos Florestais na Amazonia] program is to start a new environmental policy aimed at preserving the region. The program's central focus will be the area crossed by the Carajas railway. After meeting with President Fernando Collor at Planalto Palace, Minister Silva reported that the program will cover a 250,000 square kilometers area, which is as large as France [as heard]. He said:

[Begin recording] We will develop elements for economic exploitation of the area while we preserve the environment at the same time. Over 30 percent of this area will be earmarked for preservation of the existing forest and the preparation of natural forests on river banks to prevent erosion and other ecological problems caused by rivers. Foreign businessmen as well as Brazilian businessmen will cooperate extensively in this program. On one hand, the businessmen are interested in economic exploitation of the region and, on the other hand, they are interested in preserving the environment. [end recording]

The government intends to reforest 1 million hectares and preserve nearly 300,000 hectares of forest over 10 years. The date for the beginning of the program has not yet been set, but it will be launched by President Collor as soon as the Foundation for the Preservation of the Amazon Region Environment [Fundacao de Preservacao do Meio Ambiente da Amazonia] is created. National and foreign private companies, as well as the Rio Doce Valley Company, will take part in this foundation.

**IBAMA Reports Reduction of Forest Burning in Amazon***PY2212010290 Brasilia Domestic Service in Portuguese  
2100 GMT 21 Dec 90*

[Text] Tania Munhoz, president of IBAMA [Brazilian Institute for Environmental Affairs and Renewable Resources], has reported that the burning of forest area in the Amazon has decreased by 50 percent this year in comparison to 1989.

Munhoz positively assessed IBAMA's work this year. She emphasized the importance of control operations in the Amazon, as the organization was able to reduce the cutting of trees by 50 percent in the central Amazon region and by 70 percent in other Amazon regions in comparison with last year. She also reported that IBAMA collected the equivalent of \$9 million in fines. Munhoz added that she was very optimistic about the work to be done next year.



**Landowner, Son Found Guilty of Chico Mendes  
Murder**

*PY1612185590 Madrid EFE in English 0454 GMT  
16 Dec 90*

[Text] Xapuri, Brazil, Dec 16 (EFE)—A Brazilian ranch owner and his son were found guilty Sunday [16 December] of murdering Amazon rainforest martyr Chico Mendes. Darci Alves da Silva, 23, was sentenced

to 19 years in prison for carrying out the crime, and his father, Darly, was given the same jail sentence for ordering the December 22, 1988 slaying.

Mendes, who organized rubber tappers in the remote Amazon state of Acre to prevent the deforestation of the rainforest, was shot dead as he stepped out the back door of his home.

## REGIONAL AFFAIRS

**'Roundup' on Concern Over Iraq's 'Black Slick' in Gulf**

OW2601134291 Beijing XINHUA in English  
1231 GMT 26 Jan 91

[XINHUA Gulf Roundup at 1230 GMT: "Iraq's Black Slick in Gulf Causes Concern (by Yu Zilin)"]

[Text] Beijing, January 26 (XINHUA)—Iraq's spillage of Kuwaiti crude oil at sea have caused great environmental damage in the Gulf region, experts warned, and the move was condemned by the United States and many other countries.

Iraq reportedly sabotaged a Kuwaiti oil terminal on Friday, spewing millions of gallons of oil into the Gulf. The spill appeared to be the second major act of sabotage at a Kuwaiti oil facility since the Gulf war broke out on January 17.

On Tuesday, U.S. and Saudi officials said that oil wells and storage tanks in Kuwait had been set afire by Iraqi troops.

Accusing Iraq of releasing oil from the Al-Ahmadi Pumping Station south of Kuwait City in the past three days, Saudi military spokesman Ahmed Robayan said on Friday that the oil was flowing steadily from pumps at the sea island terminal, 16 kilometres offshore from Kuwait's main petroleum refinery and loading complex at Al-Ahmadi, just south of the Kuwaiti capital.

Experts have warned that a vast oil spill is spreading in the Gulf and could pose a major environmental disaster, decimating whale and dolphin populations while killing thousands of rare birds.

The spilled oil could amount to several million barrels and may reach 100,000 barrels a day, U.S. and Saudi sources said, adding that the black slick has spread across a 15-mile (nine-mile) area in the northern Gulf.

During the week, when oil fields in southern Kuwait were set on fire, it has been reported that "black rain" fell on part of Iran and scientists of Australia predicted Thursday that the soot and smoke could go downwind, reaching Southeast Asia or even North America [as received].

Scientists believe that the burning of oilfields is the most long-lasting widespread and severe hazard to the environment.

They said the soot and smoke will sweep through most part of the Western hemisphere within two weeks, causing possible dim and faint day light.

A leading proponent of the theory that numerous oil well fires would lead to colder temperatures and other climatic changes is Carl Sagan, the Cornell University

astronomer and a developer for the theory that airborne debris from a nuclear war could cause "nuclear winter."

According to such a theory the soot would rise into the stratosphere and linger, blocking some sun light and lowering temperatures.

"Such an outcome in Kuwait could affect the growing season in areas like Iran, Afghanistan and northern India, which are in the path of the prevailing winds from Kuwait," said THE NEW YORK TIMES Thursday.

Since Iraq is assumed to have mined the 360 active oil wells in Kuwait as well as refineries and storage tanks, which Iraq threatened to destroy; this has greatly worried scientists.

Scientists say that if a significant fraction of the oil fields go up in flames, it will take months or even years to extinguish them.

"The atmosphere will become polluted with large amount of chemicals such as carbon dioxide, which will accelerate the greenhouse effect, and sulphur dioxide. These oxides will fall to the surface along with rainfall, bringing in toxic effect on agricultural areas in the region," scientists said.

To cope with the grave danger facing world environment caused by the Gulf war, scientists have initiated the establishment of an international environmental scientific task force to examine the ecological effects when the crisis occurred.

The Kuwaiti Government in exile said today that Iraq's spillage of its oil in the Gulf showed Baghdad's aggressive intentions against the countries of the region.

The Kuwaiti News Agency (KUNA) quoted Kuwaiti Minister of Information [title as received] Badr al-Ya'qub as saying that Iraq's pumping of large quantities of oil into the Gulf was an "ignoble crime" and held Baghdad entirely responsible for the ecological disaster that would ensue.

In Washington, President George Bush said on Friday that the U.S. will make every effort to stop Iraqi spilling of Kuwaiti oil into the Gulf, and described Iraq's black slick as an act that is "outraging" the world.

Bush noted that the oil spill will have no impact on any decision for a ground offensive including a landing by Marines on Kuwaiti beaches.

He described the spilling of oil as an example of "sick" behavior by Iraqi President Saddam Husayn, a "last-gasp measure" that has no military value.

In a related incident, the United Nations on Friday published a complaint by Baghdad alleging that U.S. warplanes bombed two Iraqi tankers on Tuesday, "causing a vast oil slick in the Arabian Gulf which is bound to cause serious harm to the region's living marine resources and environment".

While accusing Iraq of deliberately dumping huge amount of crude oil into the Gulf to resist the allied forces, White House Spokesman Marlin Fitzwater said at the daily briefing that "it's the environmental damage that's greatest concern at the moment."

Fitzwater said the environmental disaster was thought to be far larger than the 1989 Exxon Valdez tanker spills in Alaska. At that time 11 million gallons of crude oil spilled Alaska's Prince William Sound, causing the largest sea oil pollution in U.S. history.

Reacting to U.S. allegations that Iraq deliberately spilled vast quantities of oil into the Gulf, Libyan leader Mu'ammar al-Qadhafi said in an interview with the British Broadcasting Corporation that "in case of war, every action of violence is legal."

#### **Germany Offers Aid for Gulf Oil Cleanup**

*LD2701005391 Hamburg DPA in German 1712 GMT  
26 Jan 91*

[Text] Bonn (DPA)—Federal Foreign Minister Hans-Dietrich Genscher has offered to the United States German help in removing the oil slick in the Persian Gulf. In a telephone conversation with U.S. Secretary of State James Baker on Saturday, Genscher said, according to his ministry in Bonn, that the Federal Republic was prepared to offer technical help in removing the environmental damage "caused by the Iraqis introducing oil into the Gulf".

According to the Ministry, Baker said Washington was examining how the Germans could be involved in this. Genscher and Baker discussed not only the situation in the Gulf region but also the development of Eastern Europe.

#### **Australia Foreign Minister Flays Greenpeace for Blaming Oil Slick on Allies**

*BK2701083491 Hong Kong AFP in English 0804 GMT  
27 Jan 91*

[Text] Sydney, Jan 27 (AFP)—Australian Foreign Minister Gareth Evans said Sunday that U.S. Greenpeace was making an "appalling" error by holding Iraq and the U.S.-led coalition equally responsible for the oil slick in the Gulf.

Mr. Evans said on television the government was doing all it could to protect Australians from terrorism. His statement came as police said the late Saturday torching of a Jewish kindergarten and synagogue was not being treated as a terrorist attack.

Mr. Evans said U.S. Greenpeace had been reported as saying the U.S.-led coalition had forced Iraq's President Saddam Husayn into a scorched earth policy. This was "quite an appalling error of judgment," he said.

"There is no question of a beleaguered country resorting to desperate means to protect itself from invasion. They are guilty of invasion," he said, referring to Iraq's August 2 occupation of Kuwait.

Experts in the Gulf said the spill—moving south from Kuwait—was about 50 kilometers (30 miles) long and some 13 kilometers (eight miles) across.

Mr. Evans said the government "for obvious reasons" could not give details of its counterterrorism campaign or the reason why it expelled Iraq's top diplomat, Charge d'Affaires Saad Omran.

On Saturday the government expelled Mr. Omran for unspecified "security reasons".

The expulsion coincided with the court appearance of a 27-year-old Lebanese-born Moslem man after police allegedly uncovered a plot to sneak a bomb aboard a U.S.-bound aircraft and hijack it to Iraq.

The court heard Hamid Taoube had telephoned Iraq's embassy in Canberra and offered his services, including to hijack a plane, in response to Mr. Husayn's call for a holy war.

A police spokeswoman said the fire which damaged a Sydney kindergarten but did little damage to the adjoining synagogue was "being treated as vandalism, not as a terrorist attack."

"You always get churches and schools burnt every weekend," she said.

On Thursday, Moslem and Arab communities were advised to take precautions after the fire-bombing of a mosque here.

#### **Peruvian Foreign Minister Blames Iraq for Oil Spill in Gulf**

*PY2701210091 Madrid EFE in Spanish 1754 GMT  
27 Jan 91*

[Text] Lima, 27 Jan (EFE)—Peruvian Foreign Minister Raul Sanchez today charged Iraq with having spilled oil in the Persian Gulf and pointed out that this action threatens the marine life in the region.

Sanchez made these remarks here shortly before leaving for Caracas, where he will attend a meeting of foreign ministers of the Group of Eight [Rio Group] to discuss the economic and energy problems the Persian Gulf war will cause for Latin America.

Sanchez said Peru deeply deplores the military actions and again calls upon Iraq to state its intention to withdraw from Kuwait in order to stop the armed actions.

The Group of Eight consists of Argentina, Brazil, Bolivia, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela.

**Soviet Scientists Predict Spread of Gulf Oil Slick***LD2701234691 Moscow Central Television First Program Network in Russian 2215 GMT 27 Jan 91*

[From the "Television News Service" program]

[Text] Soviet scientists have presented the first forecasts on the spread of the oil slick off the coast of Kuwait. In typical weather conditions for January in the Persian Gulf region, the pollution can be expected to spread at a rate of about 15 to 20 km a day to the south and southeast from the point of emission. It is believed that the overall area of pollution will rise by several hundred square kilometres daily. The oil pollution will thus cover a water area of about 1,000 square kilometers in a few days. It is evident that a substantial proportion of the coastline of Saudi Arabia will primarily be subjected to pollution. [video shows scientists examining computer images of slick; caption says "All-Union Oceanographical Institute"]

**Iranian Foreign Ministry Condemns Gulf Pollution***LD2801001991 Tehran Domestic Service in Persian 2030 GMT 27 Jan 91*

[Excerpt] The spokesman of the Ministry of Foreign Affairs of the Islamic Republic of Iran said in connection with events of the past few days which have led to the severe pollution in the Persian Gulf: The disturbing events which led to the extensive and unprecedented pollution of the environment in the Persian Gulf and countless damage has given rise to extreme concern and anxiety in the international community, notably the concern of the Islamic Republic of Iran, which has the longest coastline in the Persian Gulf.

He added: The Islamic Republic of Iran, while condemning this act, seriously expects that international organizations such as the United Nations Environment Program, the International Maritime Organization, and the Regional Organization for the Protection of Marine Environment will—under these grave and sensitive circumstances—take effective and immediate measures toward the fulfillment of their duties to examine the dimensions of the disaster, combat the pollution, and rectify the damage caused by the pollution. [passage omitted]

**Saudi Official Outlines Measures for Oil Slick***LD2801003791 Riyadh SPA in Arabic 2303 GMT 27 Jan 91*

[Excerpt] Riyadh, 27 Jan (SPA)—His Royal Highness Prince Abd-al-'Aziz-Bin-Salman Bin-'Abd-al-'Aziz, counselor at the Ministry of Petroleum and Mineral Resources, said that the Ministry, in cooperation with the Saudi company Aramco, is making every effort to deal with the oil slick resulting from the Iraqi aggressor pumping huge quantities of oil from the Kuwaiti oilfields in al-Ahmadi.

At a meeting with newsmen in the information centre in Riyadh, he said that measures were being taken and efforts made to prevent the oil slick from moving in to the rest of the Arab Gulf. He added: Other measures are technical, especially concerning the prevention of fire, and taking chemical measures to prevent the spreading of the slick.

His Highness stressed that there were efforts also to preserve the facilities that use sea water for the purpose of refrigeration and desalination. He said: Measures are in fact being taken, and this is why these facilities will not be affected, God willing.

He said that there was a team making studies and taking measures to tackle the oil slick. He said: Experts from the King Fahd University of Petroleum and Minerals are analyzing samples similar to the oil slick, and ways of dealing with it in order to take the most appropriate and efficient measures to eliminate the oil slick and its effects.

His Royal Highness Prince Abd-al-'Aziz-Bin-Salman Bin-'Abd-al-'Aziz expressed his conviction that this problem will, God willing, be overcome without affecting the Kingdom's production of oil or export capabilities. He said, "We are confident in our preventive measures".

Regarding the environmental effects of the oil slick he said, "We actually fear that it will have grave consequences".

His Highness pointed out that the oil slick came as a result of pumping large quantities of Kuwaiti oil at al-Ahmadi by the Iraqi aggressor. He noted that the oil slick originates at the oil terminal pumps and some oil tankers at al-Ahmadi port.

He said, "The oil slick began to spread last Thursday evening and has moved eastward in the Gulf due to the water currents and wind effects". He added that today an aircraft flew in an attempt to take some photos, however, it failed due to bad weather. Pointing out that the satellite photographs of the oil slick were also not clear. [passage omitted]

**Indian Environmentalist on Local Impact of Gulf Oil Slick***BK2801075191 Delhi Doordarshan Television Network in English 1600 GMT 27 Jan 91*

[Text] Environmental experts in the country have expressed apprehension that if the spread of the oil slick is not checked now, it can have an adverse effect on the Indian environment. Our correspondent, Upma Bhatnagar, spoke to Professor C.K. Vashnev of the Jawahar Lal Nehru's School of Environment Sciences about the possible fallout of the Gulf oil spill on the Indian environment:

[Begin recording] [Upma] Do you think it [Gulf oil slick] will have an impact on the Indian environment.

[Vashnev] The consequence [break in transmission for few seconds]. It is very difficult to precisely specify implications of such an oil slick on the Indian environment, but certainly over a long run it will have serious implications. At a current rate the oil slick is moving at a rate of 20 to 40 km, and it will take about 40 to 60 days to emerge out of the Gulf of Oman. And, if this happens and if the oil slick continues at the present rate, then there is every chance that the Arabian Sea will suffer from the pollution of coal tar balls which are likely to be deposited on Indian coasts. But, this is very speculative at this stage, because we do not know what kind of treatment between now and in the coming days we will be able to provide to contain the oil spill. [end recording]

### **Bahrain Official on Measures To Combat Oil Spill**

*NC2801092091 Manama WAKH in Arabic 0730 GMT 28 Jan 91*

[Text] Manama, 28 Jan (WAKH)—The State of Bahrain has taken urgent measures to deal with any eventuality that may result from the oil slick off the Saudi and Kuwaiti coast, which was caused when the Iraqi regime pumped oil into Arabian Gulf waters.

Engineer Jamil al-'Alawi, deputy under secretary of the Ministry of Public Works, Electricity, and Water in charge of water and electricity affairs, said a rubber barrier had been erected to check the oil slick which could pose a threat to the two desalination plants in Sutrah and Al-Dawr.

He added that another measure can be taken, that of installing several floating pumps which will pump the oil from the surface of the sea into reservoirs that will be emptied later.

Eng al-'Alawi said that a decision to shut down the two plants depends on the density and the fluidity of the oil and on how much it will spread in Gulf waters, and will come after all other preventive measures are exhausted.

He pointed out that in case all other measures are exhausted, the ministry will then ration water in Bahrain and will basically depend on the groundwaters.

Meanwhile, 'Abd-al-Latif Bujayri, director of water sources at the Ministry of Trade and Agriculture, has stated that the oil slick located off the northern part of the Gulf will not affect groundwaters in Bahrain and that it will evidently pose a threat to marine ecology, the coastline, and bird life.

He explained that there is no way for the oil slick to reach the groundwaters on which the Abu-Jarjur desalination plant depends.

Bujayri said that the Abu-Jarjur plant produces 9 million gallons daily. He asserted that Bahrain's water needs can be met by the Abu-Jarjur plant for some time as the plant's daily average production ranges between 9 to 10

million gallons. The remaining 188 million gallons needed can be obtained from the pumping stations of the groundwaters.

### **UAE Press, Industry Sources on Measures To Combat Oil Spill**

*NC2801164291 Manama WAKH in English 1540 GMT 28 Jan 91*

[Text] Abu Dhabi, Jan 28 (WAKH)—The oil slick now advancing down the Gulf from occupied Kuwait has triggered a wide-scale rush towards anti-pollution measures in the United Arab Emirates [UAE].

Press reports today quoted UAE officials as saying that they have taken the necessary precautions and made contingency plans to fight the threatening oil spill started by Iraq.

One report carried by the daily GULF NEWS said the Ministry of Water and Electricity is planning to set up booms on the country's waters to protect desalination plants from pollution in case the slick reaches the UAE.

"Abu Dhabi Water and Electricity Department (WED) has the necessary equipment to protect drinking water from oil contamination, and if more technical aid was needed it could be obtained from another country," a UAE official told the paper.

Sa'id 'Atiq, assistant undersecretary of the Abu Dhabi Water and Electricity Department said "the WED has a warning system to alert the authorities when the slick approaches the Abu Dhabi shores."

Meanwhile, local industry sources say the oil spill could pose some long-term hazards to the UAE.

Another source, an expert attached to a Dubai-based petroleum distribution company, expressed concern about the possible damage that would be done to the country's coastline and urged that international assistance be sought.

The oil spill is still gushing out into the Gulf. It is considered to be 15 times worse than the horrific Exxon Valdez oil spill.

"This incident is certainly a disaster for the Gulf," said the source at the regional company.

The oil, which is reported to be several inches thick in Saudi Arabia, may take weeks to reach the UAE.

### **Qatari Official Says Oil Slick Posing 'No Danger' to Local Fishing**

*NC2801164191 Manama WAKH in English 1530 GMT 28 Jan 91*

[Text] Doha, Jan. 28 (WAKH)—The oil slick in the Gulf is far away from Qatari regional waters and posed no danger to fishing areas, an official source at the Ministry of Municipal Affairs and Agriculture said.



The source also said there is no danger to marine life inside Qatari regional waters as a result of the slick.

The ministry wishes to assure citizens and residents that fish is abundantly available and that Qatar National Fishing Company and local fishermen are normally working, said the source.

The source said the ministry, in coordination with other concerned departments, is taking all necessary measures to avert any dangers from the slick.

### **Japanese Government Continues To Discuss Response to Gulf Oil Spill**

*OW2901085891 Tokyo KYODO in English 0831 GMT 29 Jan 91*

[Text] Tokyo, Jan. 29 KYODO—Japanese Government officials struggled again Tuesday to find an appropriate response to the environmental damage posed by a war-spawned oil slick creeping along the shoreline of the Persian Gulf.

Kazuo Aichi, director general of the Environment Agency, was added to the prime minister's Persian Gulf Crisis Council Tuesday and said that it was most important to dispatch a team of specialists to the region to assess the situation.

"We want to dispatch a team if conditions allow us to go, but because of the war, it would be very difficult now," Aichi told reporters.

The agency created an interagency project team Monday to consider countermeasures.

Aichi said, "Given the opportunity, Japan would like to assume leadership in dealing with environmental problems."

The environmental chief, however, indicated that Japan does not intend to act apart from the United States and other nations struggling with the slick. "We will be in close contact with the U.S. and other nations and endeavor to collect information," he said.

A group of Liberal Democratic Party (LDP) politicians concerned with environmental policy heard Tuesday morning an Environment Agency report stressing the likelihood of environmental havoc being unleashed by the 8-10 million barrels of crude oil skimming the Gulf's waters, but no firm decisions came out of the meeting, party sources said.

LDP officials at the meeting exchanged opinions on asking Japanese technicians evacuated from the Middle East before the war to return to Saudi Arabia to care for that nation's desalination plants and on the possibility of sending oil fences owned by the Maritime Safety Agency to the Gulf to control the oil slick.

Following Tuesday's cabinet meeting, Minister for International Trade and Industry Eiichi Nakao also briefed

Prime Minister Toshiki Kaifu on his ministry's plans to assist with efforts to control the slick.

Nakao suggested that with the cooperation of Japanese oil firms the nation could offer 20 kilometers of oil fence plus the one-kilometer stretch of fence already available in Saudi Arabia owned by the Arabian Oil Co. of Japan.

MITI hopes to reach an agreement with the other ministries and agencies on how the financial burden would be borne and to which Gulf nations and for how long the fences will be offered.

According to the International Trade and Industry Ministry (MITI), Japanese oil companies possess 320 kilometers of oil fence, but to guard against any domestic accidents some 240 kilometers would have to be kept in Japan.

Of the remaining 80 kilometers, MITI plans to offer what it can put together within three days of a request.

### **New Zealand Foreign Minister Suggests Wool To Mop Up Oil Spill**

*BK2901114091 Hong Kong AFP in English 1102 GMT 29 Jan 91*

[Text] Wellington, Jan 29 (AFP)—New Zealand wool could be used to mop up the gulf oil spill, Foreign Minister Don McKinnon said in a statement Tuesday.

The wool, processed in a revolutionary new way, is being used in oil containment booms being manufactured here.

Mr. McKinnon said he was happy to consider any proposals on ways New Zealand could contribute to the clean up.

"The oil slick in the gulf is an unparalleled environmental disaster," he said. "The sooner efforts are made to clean up the mess, the better."

The process turns cross-bred and coarse wool into spheres or knops which float, even after soaking up oil.

It is understood, however that the size of the gulf slick would require more wool than the recession-hit New Zealand industry produces. Australia's fine wools are not believed to work as well.

Christchurch's Donaghys Textiles Ltd. has just begun using the process to make the booms, using wool knops.

Company spokesman Hugh Ross said they consist of small spheres of wool, exploiting wool's natural ability to attract grease.

It has the capacity to absorb up to 40 percent of its own weight in viscous oils. Being a natural product, it is also biodegradable and non-pollutant, and performs best with heavier oils such as crude oil, he said.

Mr. Ross said the main problem would be getting the booms into the gulf quickly to prevent the spill causing

further damage. It would need to be transported by air and military aircraft would possibly be required.

Because of the size of the spill the booms would be used for damage control rather than containment. They may also protect desalination plants used to provide water for gulf states, Mr. Ross said.

The U.S.-led coalition forces fighting to expel Iraq from Kuwait say the Iraqis deliberately poured oil into the gulf. Baghdad says the allies caused the spill by bombing Iraqi tankers.

The last time war was good for New Zealand sheep-farmers was during the Korean conflict, when the freezing conditions on the battlefield saw wool prices climb. The price then was "a pound for a pound" (pound sterling for a pound in weight), unrivalled since.

## SYRIA

### Waste Treatment Plant Inaugurated In Damascus

JN2312171790 Damascus Domestic Service in Arabic  
1515 GMT 23 Dec 90

[Text] Damascus—Under the patronage of Prime Minister Mahmud al-Zu'bi, a ceremony was held at 1100 today to inaugurate the [liquid] waste treatment plant that will recycle waste into fertilizers in Dayr al-Hajar area in Damascus.

Minister of Local Administration Ahmad Diyab deputized for the prime minister. The inauguration ceremony was attended by 'Abd-al-Hamid al-Munajjid, minister of state for environmental affairs.

The minister of local administration explained the economic, health, and environmental importance of this plant. The plant will treat 700 tonnes of waste and produce 300 tonnes of organic fertilizer per day. It will also produce large quantities of iron, plastic, glass, and other waste, which may be recycled. The plant plays a role in cleansing the environment and protecting public health.

### Ecological Union To Hold Conference for Environment Sector

91WN0113E Moscow IZVESTIYA in Russian 6 Nov 90  
Union Edition p 3

[Article by V. Vladin: "Ecological Union Convenes Congress"]

[Text] A founding congress to establish a federation of ecologically-oriented small enterprises, cost-accounting centers, organizations and cooperatives has been conducted by the USSR Ecological Union.

This is a statement by Nikolay Reymers, doctor of biological sciences:

"It is clear that the time has come to combine the interests of all enterprises which are prepared to protect nature. There are quite a few of these. We here at the Ecological Union are being approached by a wide range of scientific-technical and production-commercial organizations and cooperatives oriented toward ecological activities."

"What could we do? Establish an information bank to encourage exchange of information. This in turn would help create a consumer market for ecologically-oriented scientific-technical and production-related products and would aid in the search for partners abroad. We could establish a special credit bank."

"One point in particular: we are essentially holding this congress at our own expense. The participants make a small organizational contribution, up to 100 rubles, which includes hotel costs."

### Official on KGB Role in Environmental Affairs, Nuclear Facility Security

LD2312214790 Moscow Television Service in Russian  
1315 GMT 23 Dec 90

[Interview with V.N. Leshin, subunit head in the USSR KGB, by correspondent Dilbar Klado, place and date not given; from the "Ecology and the KGB" program—recorded; participants identified by caption]

[Text] [Klado] I am sure that putting the subject in that way—the KGB and ecology—will seem strange to many people: were you not surprised when our department approached your department with a request for this kind of interview?

[Leshin] Yes, at first we were surprised. Then we thought very carefully that this is surely a question you cannot get away from. Ecology links together all forms of science, all branches of scientific knowledge, industry and ecology, hence all relations between people, and so our activity, as they say, must not remain outside of these things either.

[Klado] Articles have already started to appear in the central press about the role of the KGB in the attempt to

halt the purchase of harmful Western technology or of any kind of harmful product by any department.

[Leshin] Instances have been brought to light of equipment being delivered to the Soviet Union with concealed defects which in the event of its being used under high pressure and at high temperatures could have led to various unpredictable accidents—there has been a whole series of reports that we prepared recently in particular concerning our effort to prevent sabotage activity by means of the delivery to the Soviet Union of various types of equipment and technology and produce of animal and vegetable origin.

[Klado] For example?

[Leshin] In particular we have investigated the situation, the efficacy and the efficiency of the state-wide system that exists to bring to light these instances where poor quality output, dangerous output, let us say, is supplied. And we discovered that the services of the traditional health control, veterinary control, and plant-health control at the border are not working smoothly enough, to put it mildly, as a result of which the information that is obtained regarding the discovery of pests of various kinds is not implemented in the proper way and—and this is the main thing—even the information that is received by these services is not taken into consideration by the local national economy bodies of power and as a result output is sold that is infected with agricultural pests, let's put it like that, pests that should be the subject of restrictions. As a result some fairly dangerous pests, agricultural plant diseases and weeds have been distributed on the territory of the Soviet Union.

[Klado] Someone put it very neatly: the power of the ministry. So even your department is incapable, is not strong enough, to limit this power in some way. They do what they want all the same, despite the information that you give them.

[Leshin] It is not part of our task, you understand, to limit anyone's authority. If some people believe that the State Security bodies are able to give instructions on how any particular department or any particular official ought to act in any particular situation, then that is a deeply erroneous view. We recommend. We provide information for measures to be taken. And the official or the department itself determines how and to what degree our information should be used.

[Klado] At the present time everyone is very concerned about the fact that mankind has thought up so many complex and dangerous substances in its striving for unbridled progress and is wondering whether this does not represent an opportunity for people who are sick, say, and for terrorists to terrorize a country, a city, I don't know, a republic? Take the idea of nuclear terrorism for example.

[Leshin] To that I would add biological and chemical terrorism and also instances where negative influence is exerted on the natural environment. Of late this area has

been becoming the most acute of all under current conditions. The KGB constantly surveys the situation at so-called increased risk facilities. As a preliminary we single out certain facilities, regions, and situations. Whereas two or three years ago there were about 140 such facilities throughout the whole of the Soviet Union, today, as a result of the review and by virtue of various circumstances, this list on a preliminary basis now amounts to about 230 facilities.

[Klado] And you work at all of them, do you?

[Leshin] Yes. On each one of them the state security bodies take direct measures to bring to light—as you correctly put it—nuclear and chemical madmen who would be capable of carrying out acts of terrorism and inflict irreparable damage.

[Klado] There has already been one example in the press about a man who collected these radioactive substances in the hollow of a tree.

[Leshin] Yes, Yes. In the Mytishchi area [Moscow Oblast]. It was quite a serious case.

[Klado] And you were involved in that case?

[Leshin] It was dealt with directly by the Moscow directorate of the KGB. It ended with a man being convicted. But this case illustrates a situation that exists in our society, where such dangerous materials as radioactive fissionable elements are virtually—let's be careful and put it like this—in a majority of cases, are stored and are used and are buried without proper documentation, as a result of which these manifestations have been possible. On the basis of our information the KGB gave timely information to the authorities and measures were taken that now make it possible for the radiological and ecological situation on the territory of the Soviet Union and certain other major cities to be surveyed regularly and on a timely basis. Much infected earth is taken away, sources are brought to light. All of this is being done. But the worst thing is that in the Mytishchi case we were unable to establish, the investigation was unable to establish, where that radioactive element that was being used had been obtained.

[Klado] They were unable to discover that?

[Leshin] They were unable to establish it. That is the recording system we have. Therein lies our disaster. We need a law on nuclear power generation that would dot the i's and cross the t's. Who is permitted to use these materials and in what way. Where and under what conditions they should be stored. Under what conditions they can be buried. And those other processes.

[Klado] And here is another question, one that might seem a little unexpected given the course our conversation is taking. What is your department's attitude to the Green movement? It might be said that they were the first informals, may it not?

[Leshin] As far as informal organizations are concerned, well, that's a complex concept, what you regard as an informal organization. But I agree with you. What is our attitude to them? As all normal, ordinary people. We look upon the Green movement from a different point of view if it says that ecological disasters might be a kind of detonating element for social explosions. One gets the impression that sometimes the Green movement—not the Green movement, that's too big, but individual representatives of the so-called Green movement—strive to use the ecologists' fashionable slogans for their own particular goals. One cannot be calm about the kind of situation that is arising now around nuclear power stations. A mass of so-called Greens are blockading power stations and impeding the normal work of the staff of the nuclear power stations.

[Klado] But it is not just in our country that that is happening, is it?

[Leshin] Yes, you are quite right. In May of this year an attempt was made to cause an explosion at a nuclear power station in France in the Garonne Superieure Department.

[Klado] I do not think that we had any reports about that in our press.

[Leshin] You know, I don't know; I didn't follow the press. I am giving you the information that we have. Anyway, a group of opponents of the construction of nuclear power stations in France placed five explosive charges in the water conduit and a number of explosive devices in the arch of the dam. Their intention was to blow up everything and thereby deprive the nuclear power station of water and put a stop to its activity, although no one knows how it would have turned out. That was the objective that they had.

[Klado] In other words they were not specialists who were capable of envisaging the negative consequences of the explosion.

[Leshin] No, in no way. Nuclear power stations are heightened risk facilities. They have to be inviolable under any circumstances.

[Klado] I agree with you, even though I am an opponent of nuclear power generation. But here, of course, I...

[Leshin interrupting] Yes, let the scientists argue it out.

[Klado] The declarations of several republics already contain this kind of term. Ecological security. Of course, those who are engaged in ecology would like this concept—ecological security—to go hand in hand with the concept of the security of our state, the security of the individual, of course, but of the state and of the country at the same time.

[Leshin] The question has not been worked out sufficiently from the theoretical point of view. We can say what we mean by ecological security. We can say what we mean by state security. In this current case, it seems

to me, we ought to be discussing a synthesis of these two concepts, ecological and state security. It ought to be a question of the security of the socionatural community, that is to say the totality of measures, conditions, and events, the totality of everything that ensures the secure existence not only of the socio-state structure but the environment in which one lives, where these state...

[Klado interrupting] Alright, if the environment in which one lives is destroyed, as is happening now in many regions of our country, then there will be no one to live there—the state will be destroyed and we will be destroyed ourselves, by our own hands.

[Leshin] Quite right. It is the same direct danger that threatens the state, when it is impossible to live on some territory. Let me quote for you the attitude toward these issues of such an authoritative figure in the ecological movement as Bruntland. She—or rather a report prepared at her initiative and entitled *Our Common Future*—puts it directly: deepening and expanding ecological crisis threatens the national security and even the continued existence to an extent that is possibly even greater than do armed and hostile neighbors or unfriendly alliances. The deterioration in the quality of the environment is a cause of political disorder and international friction. An influential group of U.S. congressmen also believes that in the very near future issues of ecological security will be of greater importance in the policy of states and that money spent on resolving these conflicts will be comparable with military expenditure. These questions are straightforward.

[Klado] So putting the issues like this say—the CIA and ecology—will not seem strange in a different interview and in a different place?

[Leshin] Absolutely.... I could show you another document in which this group of American experts... [changes thought] it worked out a concept for the national security of the United States and it came to the conclusion that the concept for U.S. national security must include questions of an ecological kind, in particular: What is the state of the environment in the United States and in regions that are of interest to it? And how effective are the measures that are being taken to preserve the natural environment? One of the documents prepared by the American experts says: The reconnaissance services will have to expend greater efforts on studying the pollution of the environment on an international scale. Such issues as the danger for the environment of using certain chemicals, the storage of radioactive waste and poisonous materials, and the use of pesticides and other poisonous chemicals in agriculture, will become profoundly political issues and all governments will demand that their reconnaissance services expand the collection of information about ecological problems and the preparation of analytical documents so that urgent measures may be taken. That, in my view, is the quintessential attitude of the West toward the special services on matters of ecology.

[Klado] But will ecological security be given equal rights when it is included in the concept of national security that is currently being worked out in our country, because that is not yet the case?

[Leshin] Without any doubt this issue must be included.

[Klado] But you are working on this so that it will be made law?

[Leshin] I agree with you fully. But it has to be determined in which cases the USSR KGB and its other territorial bodies should be involved and what issues it should be faced with. In other words what is needed is a law; a law must be adopted as soon as possible about the Committee for State Security, a law on state security, which would determine, the legislators would determine, the role and the involvement of the state security bodies in the resolution of ecological issues. Otherwise we will be working on an amateur basis. And that is impermissible if one is to speak about harmful sabotage activity, where our efforts have to, where our activity must very seriously combat both harmful sabotage activity, as I have said, and international terrorism, be it nuclear, chemical, biological, or anything else. On this particular question we are just beginning—and timidly at that—to cooperate with the special services of foreign states. Some specialist forecasts—bearing in mind the growth in crime—I am speaking about the Soviet Union—that our criminal world will link up with the crime world overseas: the increased number of attempted aircraft hijackings, the politicization of public movements and, most dangerous, the use by them of extremist methods in their activities to achieve political goals, and certain information on the way guerrillas work in the West—all of this makes it possible to forecast that certain acts of terrorism could also be perpetrated on the territory of the Soviet Union. Incidentally, there is one case that took place off the coast of Algeria. In 1989 a sailing vessel was wrecked off the Algerian coast. When the authorities investigated it was discovered that in addition to weapons, ammunition, and explosives there were pathogenic microorganisms and poisonous substances on board.

[Klado] To whom did that vessel belong, to which country?

[Leshin] You know nothing more appeared in the press about who owned the vessel—to whom it belonged—as far as I know they looked for this afterwards, but didn't find anything. But the most dangerous thing is not that there were stocks there of some biological and chemical weapons and agents but that there were devices for applying them, in other words the intention was to use it. That is the dangerous thing. These are the questions that disturb us and I believe that the KGB together with other law-enforcement bodies must look into this area extremely carefully.

[Klado] So we can conclude our conversation by saying that the KGB and ecology is not only a legitimate way of putting things but a topical one, too.



[Leshin] And a timely one. Any delay in this matter will be fraught with serious consequences.

### **Press Briefing on Chernobyl Clean-Up Progress**

*LD2412182690 Moscow TASS in English 1804 GMT  
24 Dec 90*

[By TASS correspondents Aleksandr Kanishchev and Igor Peskov]

[Text] Moscow 24 December TASS—Gratitude to the sponsors and supporting countries of the resolution on Chernobyl, adopted on December 21 by the 45th UN General Assembly session, was expressed by Viktor Gubanov, deputy chairman of the Soviet State Commission for Emergency Situations. Gubanov heads the committee for clean-up operations at Chernobyl.

The resolution, Gubanov told a news conference here today, envisions a wide range of measures and international cooperation on long-term effects of the Chernobyl disaster.

It prepares for further cooperation under the UN system, and aims at greater efficiency, coordination and interaction of all Chernobyl projects.

Under the UN resolution, a special working group is being set up to focus efforts by various organisations on the basic directions of the Chernobyl issue, to avoid duplication and dispersal of means.

Gubanov stressed that the resolution did not imply additional foreign aid to the Soviet Union. Aid is already coming in from IAEA, WHO, UNEP, UNESCO, FAO and other organisations, he said. Virtually all UN specialized agencies have plans for bilateral cooperation with the Soviet Union in this field, but these plans need further specification and coordination.

Gubanov stressed that the Soviet Union is doing all it can to implement UN recommendations. He recalled that the Soviet parliament approved an original plan to help people living in the disaster area. He said that 116,000 people have already been resettled from the area and an additional 219,000 will have been resettled by 1992. A concept is now being developed for practical assistance to the people living in the region for the periods ending in 1995 and 2000.

The governments of the Soviet Union and individual Soviet republics, Gubanov told the news conference, have planned to allot 10.2 billion rubles to finance clean-up efforts until the end of 1991. He said the sum was one billion rubles greater than the losses sustained by the country during the first three years after the 1986 disaster.

On the future of the Chernobyl Power Plant, Gubanov said that the concrete sarcophagus of the exploded unit dependably sealed the radiation source and would reliably protect the environment for the next ten years.

Work is underway to design reliable technical protection in the long term. Gubanov stressed that plans have been made to start shutting down the power plant's remaining three units—one each year—beginning in 1993 to completion in 1995.

### **Green World Association To Launch Chernobyl Study**

*LD1712172790 Kiev International Service in English  
0000 GMT 17 Dec 90*

[Text] The Council of the Green World Association held its sitting today in Kiev. The Council discussed the issue of launching an independent public investigation of the Chernobyl accident. Sergey (?Fedorinchik), executive secretary of the association, explains why:

[Begin Fedorinchik recording] The idea of launching an independent investigation of the Chernobyl accident appeared instantly when the public saw that all the attempts to file suit in the State Court were being slashed by bureaucrats at all levels. Even the parliamentary committees failed to obtain necessary information. The only legal trial, which was held in Chernobyl shortly after the accident and where six managers of the power station were sentenced to imprisonment, proved to be a trial of scapegoats. On the other hand, the basic questions remain unanswered—what was the reason, and what are the consequences? So there is a need to involve experts into this investigation to collect evidence. It is not the idea of revealing the sensational materials. People should know the truth about the Chernobyl accident and that truth was concealed deliberately. [end recording]

The council set up two investigation groups—a group of lawyers and a support group which is represented by journalists, experts and public activists.

### **RSFSR Chernobyl Committee Establishes Newspaper**

*91WN0113C Moscow TRUD in Russian 3 Nov 90 p 1*

[Article by L. Buzova: "SLAVYANSKOYE POLE"]

[Text] The RSFSR State Committee for Elimination of the Effects of the Chernobyl Disaster is to have its own press organ. This will be the interregional newspaper SLAVYANSKOYE POLE.

At the present time over 900,000 of the one-and-a-half million residents of Bryansk Oblast are living in areas contaminated by radiation. In some population centers the density of contamination reaches unimaginable proportions.

The staff of SLAVYANSKOYE POLE is now being assembled. Its core will be comprised of journalists from the oblast youth newspaper, who resigned as a group at an oblast Komsomol plenum. The problem was that the oblast Komsomol organization was unwilling to fund a newspaper which set an independent course.

### **Dangerous Generators Keep Nuclear Plants at Half-Capacity**

*PM1712171590 Moscow MOSKOVSKIYE NOVOSTI in Russian No 48, 2 Dec 90 p 4*

["MOSKOVSKIYE NOVOSTI Interview" with Lev Baranov, chief of USSR Prosecutor's Office Administration for the Supervision of the Execution of Laws in Economic Activity, by Nataliya Gevorkyan: "Guarantee of Disaster"]

[Text] According to the USSR Prosecutor's Office, steam generators for nuclear power stations have become such a guarantee. Do we have to wait for a new Chernobyl disaster, and why is the Prosecutor's Office not getting involved? This was the question with which we started our conversation with Lev Baranov, chief of the USSR Prosecutor's Office Administration for the Supervision of the Execution of Laws in Economic Activity.

[Baranov] After a recent check, we expressed our legal positions at all possible levels, notably to Lukyanov and the USSR Council of Ministers: Of the 56 steam generators supplied by the Podolsk plant alone, 26 have been put out of commission because of accidents, and legislation on supplying high-quality output that corresponds to state safety standards at nuclear power stations was violated. The production of poor-quality equipment must be stopped, in order to prevent a disaster at an AES [nuclear electric power station].

[Gevorkyan] Why exactly is there a danger of a disaster?

[Baranov] As practice has shown, the use of this make of steam generator at full capacity is fraught with dangers of radiation leaks and self-destruction through accidents. This is due to design and technological defects.

[Gevorkyan] So the culprits are known...

[Baranov] The results of research into accidents with steam generators in the Novovoronezhskiy, Yuzhnoukrainskiy and Zaporozhskiy AES's show that the main culprit is the "Gidropress" design bureau and its chief designer—a fact which, incidentally, the USSR Academy of Sciences has admitted. Furthermore, on the instructions of the USSR Council of Ministers, scientists are involved in developing a new model of steam generator. "Gidropress" and the Podolsk plant that manufactures them are incorporating changes into the design and abandoning the previous manufacturing technique, having recognized its shortcomings.

[Gevorkyan] And yet AES's are still being supplied with substandard steam generators.

[Baranov] And they are continuing to function at half-capacity to avoid an accident, thus causing losses of billions of rubles to the country. This year, the loss sustained because of the need to replace the steam generators at the second power unit of the Yuzhnoukrainskiy AES and the first power unit of the Balaklavskiy AES in terms of electricity generated will be 6.4

and 14.1 billion kilowatt-hours respectively. As a result they both feature on the list of loss-making enterprises.

Altogether the country's nuclear power stations have claims against the supply of substandard steam generators to the tune of over 200 million rubles. But their cases cannot be heard by the State Board of Arbitration. There are several reasons for this: The main one is that the Ministry of Nuclear Power Generation is both plaintiff and defendant. Note that at the moment our arbitration is not yet independent, because it depends on the USSR Council of Ministers and cannot be an objective judge in economic relations.

### **Japan Plans To Conclude Accord on Nuclear Power Safety With USSR**

*OW2212135090 Tokyo KYODO in English 1318 GMT 22 Dec 90*

[Text] Tokyo, Dec. 22 KYODO—Japan plans to conclude an agreement with the Soviet Union to promote bilateral cooperation in securing safety measures at nuclear power plants, government sources said Saturday.

The conclusion of the treaty is likely to take place when Soviet President Mikhail Gorbachev visits Japan next April, the sources added.

Gorbachev reportedly plans to visit Japan April 15 for at most three days. He will be the first Soviet leader to visit Japan.

The Soviet Union has asked Japan for the conclusion of a treaty because it feels Japan has considerable expertise in nuclear safety, according to the sources.

The sources added that Japan has decided to meet the Soviet request because providing the Soviets with safety technology will help prevent the recurrence of accidents at nuclear power plants such as that at Chernobyl. The 1986 nuclear disaster caused worldwide concerns over the environment.

Exchanges of information about safety measures and possible accidents at nuclear power plants, exchanges of technical experts, and medical cooperation to treat victims of nuclear accidents are likely to be among the main contents of the pact.

The Japanese Government is considering sending medical experts and medical equipment and supplies to the Soviet Union to aid Chernobyl victims based on an accord signed in early September by Japanese Foreign Minister Taro Nakayama and his Soviet counterpart Eduard Shevardnadze, according to the sources.

Japan has also pledged to give the Soviet Union 2.6 billion yen in medical supplies for the victims.

### **South Africa Could Play 'Key Role' in Chernobyl Cleanup**

*MB2012093290 Johannesburg Domestic Service  
in English 0900 GMT 20 Dec 90*

[Text] South Africa could play a key role in the ongoing struggle by the Soviet Union to overcome the effects of the Chernobyl nuclear disaster in 1986.

This is the view of group executive of the community health research unit of the Medical Research Council, Dr. (Derrick Yach), who visited the Soviet Union to discuss links between South Africa and the Soviet Union in a number of fields.

He said that the Chernobyl disaster was still having a devastating psychological and social effect on the Soviet population.

He said the Soviets had indicated a need for a joint project between Ukrainian health officials and South African health psychologists coordinated by the South African Medical Research Council.

### **Chelyabinsk Nuclear Power Plant Referendum To Be Held**

*PM2712105390 Moscow PRAVDA in Russian  
24 Dec 90 Second Edition p 1*

[Report by correspondent V. Cherepanov: "Referendum Scheduled"]

[Text] Passions have been kindled around the construction of an AES [nuclear electric power station] in the South Urals after the Chelyabinsk Oblast Soviet of People's Deputies took the decision regarding the matter.

Although this so difficult choice was recognized as having no alternative, a whole series of demands have been made on union and republic organs without whose unfailing fulfillment the station's construction should not be resumed. Nonetheless, accusations of "colluding with the departments" and "betraying voters' interests" have again been leveled against the soviet leadership and the deputies.

The recent session of the Chelyabinsk City Soviet of People's Deputies announced that a referendum will be held on 3 March 1991, during which the city's inhabitants should voice their attitude not only toward the construction of the AES but also toward the burying of radioactive waste which comes to the oblast from other regions of the country.

### **Novaya Zemlya Test Range Controversy, Public Protests Explored**

*91WN0119A Moscow PRAVDA in Russian 18 Nov 90  
Second Edition p 4*

[Article by PRAVDA special correspondent A. Pokrovskiy, from Novaya Zemlya and Moscow: "Such a Resounding Echo: After the Nuclear Weapons Tests at Novaya Zemlya"]

[Text] In 1990 the United States conducted nine nuclear explosions, France—five, China—two, and the Soviet Union—one.

In addition, overall 22 underground nuclear explosions were conducted on U.S. territory in the interests of the Armed Forces of Great Britain.

To the Chairman of the USSR Supreme Soviet, M.S. Gorbachev, with copies to the Interregional Group of the USSR Supreme Soviet and the editorial office of the newspaper PRAVDA.

We, residents of Yamal-Nenets National Okrug in Tyumen Oblast, protest against the continuing nuclear explosions which are being conducted on the island of Novaya Zemlya. The ecological situation in our region has been brought to the brink of disaster. The country is paying for refinements in nuclear weapons with the health of our children, the native inhabitants, and the entire population of the North.

The tests have been going on for decades. The percentage of cancer patients has sharply increased, and nursing mothers lose their milk early. The Ob River brings us polluted water from upriver. The tundra has been contaminated. Deer meat and raw fish are the main food of the indigenous population, but now using these products for food is a threat to the health and life of the peoples of the North, and the Khanty and Nenets have a very low life expectancy. Wild animals and birds (partridges and polar foxes) have migrated from the island of Novaya Zemlya. Every year there are fewer and fewer fish in the waters of the North. The fish that are left are not suitable for food. The tundra of the North has been wounded. Geologists' barbarous treatment of nature has made the Yamal Peninsula one of the regions of the country which are dangerous to human and animal life. The social conditions in which the people of the North live are being aggravated by the ecological situation which has been created. If the nuclear weapons tests are not stopped, we will be forced to appeal to the United Nations. We will call for the protection of the peoples of the world.

Appended is a sheet of paper with 169 signatures.

City of Salekhard, Sverdlov Street 13, City Fish Cooperative, Initiative group "Preservation of the Environment"

That is the letter I grabbed to take along when I heard about the possibility of a trip to our northern test range. But I was unable right away to fulfill the promise I had given in the article: "An Hour After H-Hour"

(PRAVDA, 26 October) to tell honestly about everything I saw in Novaya Zemlya. From afar the Arctic began to accustom us to its ways. The plane from Arkhangelsk carrying a group of people's deputies and journalists from northern newspapers managed to land at Beluzhaya Guba right after a nuclear explosion. But we were forced to stop half-way and return to Moscow—the "window" over the Novaya Zemlya airport had slammed shut. It took us another four attempts to achieve our goal.

I have to tell you this, since even ordinary talk about the weather took on additional meaning there. But I will talk about that a little later. For now we met at the airport going opposite directions: some had arrived, others were already leaving. And so two press conferences began simultaneously. Those who were leaving interviewed the USSR Deputy Minister of Atomic Energy and Industry Professor V. Mikhaylov, and I seized the moment and asked that I. Shpektor, people's deputy of the Komi ASSR, share his impressions from the trip.

I must confess that from the Salekhard letter (but not just from it) I now and again felt a little uneasy about whether I should "take more roentgens" in Novaya Zemlya after numerous journalistic trips to AES's [nuclear electric power station] at different levels of sophistication, after participating in dismantling fuel elements and being lowered into a dismantled reactor, and after trips to Chernobyl. And it seemed to me that I understood the pressure of voters' fears which the group of deputies must have felt while flying to Novaya Zemlya. But I. Shpektor's story literally puzzled me.

"Today technogenic interventions," he began energetically, hurrying to speak out before the plane left, "are giving rise to more negative consequences than nuclear tests. From its chimney, any TETs [heat and electric power plant] and any slurry reservoir present more risks than a normally operating AES. (Incidentally, some Vorkuta coals have a high content of radioactive isotopes—A.P.). Therefore, in my opinion we should follow the example of Chicago and eliminate all coal boilers and switch to the atom. With a safety guarantee, of course, and to do that tests are needed too."

"How do the voters feel about this point of view?"

"They have various opinions. We must work hard and skillfully convince people."

A little later I was introduced to a document which officially supports, so to speak, the deputy's point of view.

"In accordance with the protocol of the 20 June 1990 meeting at Comrade I.S. Belousov's and the 25 October 1990 telegram of the commander of the military unit, a group of community representatives of the Komi ASSR and Arkhangelsk Oblast composed of the following people—I.L. Shpektor, people's deputy of the Komi ASSR and the Vorkuta City Soviet and member of the Komi ASSR Supreme Soviet standing commission on ecology; A.I. Taskayev, director of the Biology Institute of the

Komi Scientific Center of the USSR Academy of Sciences' URO [expansion unknown] ; A.P. Rastorguyev, correspondent from the newspaper MOLODEZH SEVERA; M.A. Danilov, assistant to RSFSR People's Deputy A.P. Butorin; and I.V. Bents, correspondent from the newspaper PRAVDA SEVERA—visited the Novaya Zemlya test range and in the presence of the chief of the range, Rear Admiral V.A. Gorev, and associates of the radiation safety office, V.P. Brilev and I.A. Nizovtsev, Comrade I.L. Shpektor and A.I. Taskayev conducted gamma and beta measurements in the region of the site where an underground nuclear explosion was conducted on 24 October 1990 for the purpose of confirming the reliability and quality of military equipment. The gamma background was no higher than 20 microroentgens an hour 30 meters from the shaft, and there was no beta contamination..."

Oh, rumors, rumors! How are you born, of whom, and why? It seems that we all unanimously agree that the main source of these rumors is a lack of information. And the test range is at fault in this, and so is, incidentally, the entire administrative-bureaucratic system which is now collapsing.

Let us be frank—even today incomplete statements are useful to some economic managers. So why torment yourself over the creation of no-waste technologies when you can, let us say, wink suggestively at the distant test range? And, why hide it—our brother the journalist is capable of spreading anxiety with print runs in the millions by his unqualified fancy talk.

I am distressed to read lyric lines in the newspapers about how the polar night lost a great deal of its charm when the golden lights of the Tyko Vylko camps went out. Let us counter them with the dry lines of archive materials.

"The Novaya Zemlya Islands were discovered by Russian White Sea Coast dwellers back in the 11th century, but for a long time there was no permanent settlement there. Settlement began only after 1920, when a commune was formed there. Seventy-two reindeer were imported for it. But the deer mixed with the wild herd and the commune broke up. In 1924 Tyko Vylko was elected chairman of the Novaya Zemlya Soviet, and in 1927—chairman of the craft artel too. In 1954, when the Soviet Government appealed to the island soviet to examine the possibility of resettlement, 104 families lived in the main camp of Beluzhaya Guba. The USSR Ministry of Defense built a new home for each family, paid their moving expenses, and paid off the 212,000 ruble debt for the craft artel. At a general meeting of the islands' residents, the decision was made to voluntarily consent to leave Novaya Zemlya because of the need to strengthen the country's defensive capability and, as Vylko himself said, 'to return to the land of our fathers and mothers all together.'"

We drove around Beluzhaya Guba at the end of the work day, when tens of thousands of "golden" lights were being lit in the city's homes. I watched mamas leading



little kids who were rosy-cheeked from the cold and Professor V. Mikhaylov, who has tied his fate to the range for a quarter of a century already, and Colonel S. Kuzin, who were sitting next to me in the bus, and I remembered Vice-Admiral G. Zolotukhin, who remained in Moscow this time, and other officers whom I had met during the trip and who served here for many years and lived with their families and raised healthy children; and I began to be a little ashamed of my own fears.

I must qualify that. I certainly do not want to create an impression of the islands as Heaven on Earth or of the nuclear tests—as harmless experiments. Living and serving in the Arctic, when you may get lost in a blizzard crossing the street, when the sun is not seen for four months of the year, and when the cold and hurricane winds constantly threaten the heating system, is generally a harsh business. And there is also the housing shortage, the unhappy diet, in short, regular mainland troubles.

But as for the tests, we still faced a trip to the site where they are conducted.

At the moment of the explosion, the Northern Fleet hydrographic ship "Gradus" was rocking not far away in the stormy Varenets Sea, which "provided the weather." And now it was providing our 300-kilometer trip with a clear, moon-lit night, our trip to a spot where above them people who live more than 1,000 kilometers away imagine they see the atomic "mushrooms" seen at the movies and the invisible all-penetrating radiation. But the morning revealed to our eyes nothing but quiet, snow-covered cone-shaped hills. Just try and guess which one of them the fiery tornado had been squeezed under.

I mean just that, "squeezed." Unlike tests in the atmosphere, which were banned by the Moscow Treaty of 1963 but have to this day left sanitary zones on the northern island of Novaya Zemlya, underground tests are devised so that all the radioactive fission fragments of the nuclear fuel remain underground.

To do that, the charge is placed more than half a kilometer deep and all the exits to the surface are plugged up tightly; and only the instruments, in a matter of nanoseconds, should tell the researchers everything that is happening at the walled-in site. When they saw the set of these instruments which was brought to Nevada for the joint tests, American specialists offered a million dollars for it straight off.

So this is a precise and complicated job—to place the charge under the hill. A thorough geological survey precedes it, done by experienced geologists and miners from the Zheltyye Vody uranium mine. So now we were to see with our own eyes, if we wanted, and through our own hides ascertain the reliability of all this very complicated activity. In addition to our own crude feelings, we were offered the most precise instruments. They are "managed" by Colonel V. Safronov, a student of V.

Mikhaylov at MIFI [Moscow Engineering Physics Institute] and now a candidate of technical sciences, who is a long-time resident of Novaya Zemlya. So we can be certain of the high technical level of our "inspection."

But, I must confess, I did not look so much at the instrument gauges as at the deer which appeared on the hill not far from the entrance to the shaft leading under the hill with the explosive charge. He was fat, healthy, and without any bald patches at all. We were lucky, and on the way back we saw a polar bear which unhurriedly lumbered somewhere about his business. Looking at him, I remembered the funny story, maybe invented or maybe true, about the latest commission which came at the request of one of the northern regions and introduced itself like this:

"We have brought you some bald biologists. Now show us the bald deer which you wrote about."

In terms of the condition of their hair cover, I am like the biologists mentioned above. And to be honest, I looked at the animal's thick fur with envy. In order to end talk about the local fauna, I will add that I saw and even tasted the local loach. I assure you that it was safely covered with scales, as a salmon should be.

I understand that such stories cannot serve as scientific substantiation for an assessment of the radiation situation on Novaya Zemlya. So I ask those who like the rumors about "balding" northern animals to accept this as testimony of independent observers, for next to me were correspondents of IZVESTIYA, TRUD, and KRASNAYA ZVEZDA.

We even went into the shaft all together. It still smelled of firing powder and the radiation level was several times higher than outside.

"The process of preservation of the explosion's effect is underway," it was explained to us. "The high temperature melted the rock, and now it is cooling and vitrifying. It is as if a giant envelope had been created which isolates the products of the explosion. Then the permafrost bonds these walls like a second mantle, forever, I would like to think, without allowing the radionuclides to migrate."

"So then there have never been any blowouts during the explosions?"

"Unfortunately, there have been. The last such incident happened on 2 August 1987, when a small quantity of radioactive gases escaped, with a short half-life, it is true. So there was no radioactive fall-out. Nonetheless, additional security measures were taken which, as the last explosion proved, worked.

Obviously the time has now come to return to the promised talk about the weather. It so happened that on 24 October, after many phone calls, I "caught" V. Mikhaylov and G. Zolotukhin and tried to find out about the upcoming work. I found them in the office of Yu. Izrael, the chairman of USSR Goskomgidromet



[State Committee for Hydrometeorology]. They were "cooking up spells" over the weather maps so that, no matter what, no people would be threatened by radioactive fallout. And only after a thorough analysis by experts did the State Committee make the decision on "H-Hour."

Immediately a call was made on the high-frequency phone to the Arkhangelsk Oblispolkom with this information. The local chairman was not in, and they asked that he be told: "There is an important report from the northern test range. Please call us." A return call did not follow.

But calls came from other countries. V. Mikhaylov told about one of them at the session of the USSR Supreme Soviet and explained he could not tell the exact time on an ordinary telephone.

Why? Not only can gas escape during an explosion, but information too. Many countries regularly monitor all nuclear explosions on the planet using national monitoring systems. According to international agreements, they have the right to know the basic parameters: that the explosion is an underground one, and that its power level is no more than 150 kilotons. But then, the details are a "trade secret."

But it is no secret that foreign satellites constantly monitor the northern test range, and that tracking stations, including American ones, are located in neighboring countries. It is also no secret that we also monitor the nuclear situation on the entire planet with our national system. I was at one of these Soviet stations and I can imagine what it is like to be on duty constantly. If you know "H-Hour," you can employ additional monitoring media and look through the neighbor's fence more efficiently.

That is why the proposal given in the last section of the Statement of the RSFSR Supreme Soviet Presidium and the Council of Ministers of the Republic to immediately define the conditions and procedure for cooperation in the preparation, realization, and monitoring of decisions in the sphere of the country's defense and security seems valid. It is very important to define the channels not to satisfy someone's personal ambition, but to insure that the population is adequately informed without losing the state and military secrets which, alas, still exist.

Of course, the test range should be a closed zone to a certain extent. But not inaccessible to public monitoring. It is good that the first steps in this direction are being made. Thus, in May of this year, USSR people's deputies A. Vyucheyevskiy, A. Zolotov, and A. Yemelyanenko, RSFSR people's deputy A. Butorin, chairman of the Arkhangelsk Oblispolkom P. Balakshin, chairman of the Nenets Okrug Ispolkom Yu. Romanov, and certain other representatives of departments and public organizations visited there. As far as I know, they received all the information they were interested in.

I should obviously add that the source of the information was not only military men. Monitoring of the radiation situation in the Nenets Autonomous Okrug, for example, is underway, and in another eight observation stations of USSR Goskomgidromet. And about a year ago an expert study was done of the background radiation situation from airplanes on the route from Arkhangelsk to Novaya Zemlya to the Baygach Islands to Amderma to Naryan-Mar to Moscow. It became clear that the radiation background on the territory of the Nenets Autonomous Okrug was even slightly lower than in the country as a whole. These and other more detailed data were published in the open press. But rumors are a living and by no means harmless thing. And there is only one solution here—improve information to the concerned public on the real state of affairs and leave no room for conjecture.

Yes, we must learn how to monitor specialists. But we must also know how to listen to them. Based on these considerations, I asked Professor V. Mikhaylov to comment on the letter cited at the start of this article.

"It impressed me," he said, "with its concern for our North. But is all this related to the nuclear tests? We all were at Novaya Zemlya and saw that deer and polar bears live in the region of the test range. Biologists have counted up to 6,000 deer here and about 50 polar bears on the southern island alone. Many populations of polar foxes and lemmings live there, and geese, ducks, and partridges fly in to nest. Allow me to cite these figures—42 tests, approximately one every six months, have been carried out under the strictest security measures during the entire existence of the test range, since 1963. But, of course, there are complications and difficulties in the North. Thoughtless and short-sighted encroachment of civilization affects the ecological situation, especially since northern nature is very vulnerable, and the social conditions of the life of the northern peoples is our common pain. We must all be very careful in developing the Arctic and near-Arctic regions. And for my part I can say that in creating our country's defense shield, the Novaya Zemlya residents are taking all possible measures to insure that the ecological consequences of the nuclear weapons tests are reduced to the minimum.

Novaya Zemlya lies on ancient clay which because of its viscosity reliably extinguishes the seismic waves of an explosion. Even in the village of Severnyy, which lies near the range, their impact feels like the rocking of a boat in still water when you step onto it from shore. But the human nerves which are laid bare, as the echo of the 24 October explosion showed, respond to it more sensitively than the most precise instruments. And how can it be otherwise, when a warning about the death of every living thing on the planet can easily be made out in the man-made underground sound. And people who deal directly with nuclear weapons understand this more clearly than others. Their opinion is unanimous: the only right path to a nonnuclear world is to start completely banning nuclear weapons.

But this, let us realize, is not an easy path. Remember, the long moratoriums on nuclear weapons tests in our country found no response among other nuclear powers. Moreover, there are signs that the terrible weapons are spreading ominously. And the crisis in the Persian Gulf, for example, shows that we must not leave our country defenseless in case an unseen situation arises. So, we must seek solutions which are acceptable to everyone.

Therefore, specialists are beginning to grope for the narrow paths that lead to the main path. There are different proposals, but here we are entering the high sphere of interstate relations, so let me give the floor to a diplomatic specialist.

**"The Soviet Union,"** said V. Karpov, USSR deputy minister of foreign affairs, in connection with the tests of 24 October on Novaya Zemlya, "supports stopping all nuclear weapons tests, and the USSR is prepared to work in this direction—through bilateral negotiations with the United States, within the framework of the Disarmament Conference in Geneva, and at the conference to amend the 1963 Treaty on Banning Tests in the Three Environments, which is coming in January of next year."

What can I add here? Perhaps only that during the trip around Novaya Zemlya, we did not see nuclear maniacs, but met highly qualified specialists who to the highest degree understand their responsibility for the fate of the Motherland and the world. And it is because of this that they are more prepared than anyone else to reforge nuclear swords into plows.

Author's photographs—The waterway to the range begins here. We entered the shaft all together. A wild deer waited for us at the entrance to the shaft.

#### **Karaganda Trade Union Threatens Protest Strike if Nuclear Tests Resume**

PM1812161390 Moscow KOMSOMOLSKAYA  
PRAVDA in Russian 14 Dec 90 p 1

[Unattributed report under general headline: "Have You Heard About It? Have You Read About It?"]

[Text] The Presidium of the Karaganda Oblast Trade Union Council has given USSR President M.S. Gorbachev an ultimatum. If nuclear weapons tests are renewed at the Semipalatinsk Nuclear Test Site in 1991-1992, as follows from reports from the country's Defense Council, then the oblast's workers are promising to stage a protest strike.

#### **Denial on Resumed Nuclear Tests in Kazakhstan**

LD2712204190 Moscow in English to Great Britain and Ireland 2000 GMT 27 Dec 90

[Text] A spokesman for the parliamentary committee for the environment in Kazakhstan has denied media reports that nuclear arms tests will resume at the Semipalatinsk test site in his republic. He said the reply of the

Soviet Defense Council to their inquiry unequivocally states there have been no decisions on the continuation of tests in Semipalatinsk.

#### **Defense Council Quashes Rumors on Kazakh Nuclear Tests**

PM2812161790 Moscow IZVESTIYA in Russian  
28 Dec 90 Union Edition p 5

[IZVESTIYA correspondent Oleg Stefashin report under the "Direct Line" rubric: "Test Range Remains Silent"]

[Text] Karaganda—M. Nurtazin, chairman of the Kazakh SSR [Soviet Socialist Republic] Supreme Soviet Committee for Questions of Ecology and the Rational Use of Natural Resources, has denied the report circulated by certain news media that nuclear weapons tests are to be resumed at the Semipalatinsk test range.

As is well known, the republic parliament has expressed its attitude to this problem with utter clarity, banning the carrying out of nuclear explosions and the testing of other kinds of weapons both on the test range itself and throughout the rest of the territory of Kazakhstan. However, soon after the issuing of this resolution reports appeared in a number of central publications that the USSR Defense Council does not intend to take into account the expression of the sovereign republic's will and intends to carry out a total of 18 more underground explosions in the Semipalatinsk area in the next 2 years. This has, incidentally, also been stated in the press by E. Gukasov, deputy chairman of the Kazakh SSR Council of Ministers, citing documents in his possession.

It is only natural that the republic should have been swept by a wave of protest, which has assumed serious proportions. The situation in many regions has become severely charged. This forced members of parliament to approach the USSR Defense Council for clarification.

"The answer received by us," M. Nurtazin stated, "indicates unambiguously that neither the Defense Council nor the president himself has taken any decisions to continue tests at the Semipalatinsk nuclear test range. The rumors circulated have proven to be false."

Asked who benefited from trying to mislead people, M. Nurtazin stated that he personally suspects populists, who have sought to acquire political capital by destabilizing the situation in the republic.

#### **Prosecutor's Office Discusses Moscow, Volgograd Pollution Issues**

PM1812094390 Moscow SOVETSKAYA ROSSIYA  
in Russian 7 Dec 90 Second Edition p 6

[S. Karkhanin report: "We Are Living on a Test Site—Notes From USSR Prosecutor's Office Collegium Sitting"]

[Text] During a recent stormy debate in the Union parliament about the relative importance of various

draft laws, a short speech by one of the speakers hushed the emotion-filled hall. It went roughly as follows: "In any state political structure all of us, our children, and our grandchildren have to live in a natural environment. So maybe ecological legislation is the most important right now?"

Considering the question of how ecological legislation is being observed in Moscow and Volgograd Oblast, the Union Prosecutor's Office Collegium repeatedly referred to normative acts. They exist in a general sense. But they are not working. Although it transpires that what constitutes an "ecological crime" has not yet been clearly defined and there is no official expert methodology which would enable the damage to be estimated.

"Data for Moscow. Here congenital deformities are one and a half times more prevalent than on average throughout the country. Infant mortality is two-three times higher than in other state capitals. Since last year more inhabitants in the city have been dying than have been born. One-third of Muscovites are living in ecological discomfort—this is mainly in the central, south-eastern, eastern, and northern neighborhoods. Moscow comes 70th out of the 90 largest world cities for life expectancy." (From background information for the sitting).

The picture is, to put it mildly, frightening. However, it is no good being surprised: Seventy-five percent of the capital's plants and factories do not have the resources to monitor environmental pollution. As a result the ground is saturated with zinc, lead, molybdenum, and chromium, and specialists have gravely warned that children playing in sandboxes could lead to serious illnesses. It is best not to mention at all what sort of substances are being poured into the water. But radioactive waste must be mentioned here. Objects contaminated by radiation were found in half of the schools checked. And criminal proceedings have been instituted in the Borisovskiy Ponds incident, where radioactive rock got into the environment through the fault of one of the institutes.

Usually the culprits try to justify themselves by saying that the maximum permitted concentrations of harmful substances have not been exceeded. "People are dying, but the maximum permitted concentration is always within the norm! How long can such nonsense continue?"—USSR People's Deputy M. Yakovlev, a participant in the sitting, noted.

"We are not contravening the norms," leaders of Moscow's No. 3 Garbage Incineration Plant said complacently when a check was carried out. But it established that the enterprise is releasing dioxin into the atmosphere—this is a particularly toxic chemical which U.S. soldiers used when fighting in the jungle against Vietnamese guerrillas. So what happened? Nothing. The factory was closed but was then reopened.

The solution is simple. Environmental protection bodies are often faced with a catch-22 choice: "We must, but we can't." In Oktyabrskiy Rayon they tried to shut an

industrial rubber goods plant which has long plagued city inhabitants with fumes and smoke, but suddenly it emerged that this would result in interruptions to the work of the Lenin Komsomol Motor Vehicle Plant, which gives money to Moscow's budget. And likewise if garbage is not incinerated it will fill up all the streets.

An emergency session of Moscow City Soviet held last year did not, unfortunately, adopt emergency decisions and the ecological situation in the capital has since only deteriorated. Meanwhile the much-vaunted decision of Moscow Gorispolkom [City Soviet Executive Committee] to remove ecologically harmful production facilities from Moscow is being carried out at a real snail's pace.

"Data for Volgograd Oblast. Over one-third, and in Volgograd over half, of the 39,000 stationary sources of harmful discharges into the atmosphere do not have purification facilities. In the oblast center's Krasnoarmey-skiy Rayon the 'Kaustik' and 'Khimprom' enterprises are poisoning the air with hydrogen chloride, which is extremely harmful to people's health. Inhabitants in this region are dying seven and a half years earlier from cardio-vascular illnesses than in relatively clean Tsentralniy Rayon." (Extract from background information).

That's the answer to the question of why the prosecutor's office cannot opt out of protecting nature. A threat to man's right to live is already a reality, and not for nothing is an ecological disaster considered more dangerous than a nuclear explosion.

Perhaps the main obstacle is departmentalism. The same Moskompriroda [precise expansion unknown; Moscow City Soviet Committee for Protection of the Environment] is trying to fine the renowned Likhachev Motor Vehicle Plant, whose ecological sins are considerable, but there's no way to get at the money: There is no Ministry of Finance instruction. Now departments have a new tactic exploiting the general legislative euphoria; on the quiet they are preparing drafts of suitable normative acts. What will a radiation safety law compiled in the depths of the Gosatomenergo [State Committee for the Supervision of Safe Working Practices in the Atomic Power Industry] be like? Ecology lawyers are aptly dubbing this "pollution of the legal environment."

As I recall, a Japanese ecologist listening to an argument about where to move a notorious paper and pulp combine from the shores of Lake Baykal was astounded: "I do not understand. Because wherever you relocate it, there is still water, trees, and people living there, so what will be gained?" It is typical that that is precisely how Moscow Prosecutor G. Ponomarev put it word for word at the collegium sitting.

No resources? But this figure was cited: In four years only 360 million of the 570 million rubles allocated in Moscow for the five-year plan's environmental protection program was spent.

No good will come from complete absolution. If the administrative control levers are broken, and the economic levers are not yet operating, it does not mean that laws have been abolished. Prosecutors are right to make tougher demands of specific culprits. Incidentally, an order has been signed creating a new major law-enforcement prosecutor's office for environmental protection which will start work in the country's north-western oblasts.

### **Interregional Group Plans Volga 'Ecological Parliament'**

91WN0113D Moscow IZVESTIYA in Russian 5 Nov 90  
Union Edition p 2

[Article by Valeriy Kornev, Volgograd: "Ecological Parliament"]

[Text] *An initiative group of deputies from the Volga basin has proposed the establishment of an ecological parliament in the Volga basin for the purpose of taking emergency measures to save the Volga.*

Among the founders of this parliament are people's deputies from the Mordovian, Mari, Chuvash and Kalmyk Republics, and Tver, Nizhegorod, Saratov, Volgograd, Astrakhan and Vladimir Oblasts... Of course I have not by any means listed all the areas which would be influenced by an ecological parliament encompassing the entire Volga, from its sources to the Caspian Sea.

The parliament will not duplicate or supplant public environmental protection movements. It has other goals. This was stressed immediately by L. Savelyeva, chairperson of the Lower Volga Ecological Association and co-chairperson of the Volgograd Oblast Soviet's Permanent Commission on Environmental Protection and Rational Utilization of Natural Resources, who was given the privilege of opening the founding session.

What are those goals? The principal goal was clearly defined in the course of discussion: to coordinate actions by local authorities and deputies along the entire length of the Volga. There are plans to combine efforts to solve common ecological and economic problems, take coordinated steps in the event of an emergency situation in any region along the Volga, and approach the central authorities with proposals regarding the adoption of legislative acts concerning environmental protection. It was decided that each republic and oblast will delegate its own representatives to attend the ecological parliament.

The founders officially appealed to the republics' supreme soviets and to oblast soviets, requesting support for their initiative. Documents were also sent to the USSR and RSFSR supreme soviets.

### **Odessa Holds Referendum on Pollution, Economic Zone**

LD1712165890 Kiev International Service in English  
0000 GMT 17 Dec 90

[From the "Ukraine Today" program]

[Excerpts] A referendum, the first ever in the history of Soviet power, was held today in the city of Odessa, [in the] south of the republic. The referendum was conducted on the initiative of the city authorities and it was intended to decide on the future of the chemical factories in the seaport area, and also to poll the residents about the idea of setting up a free economic zone in Odessa. Says (Andrey Krupnik), chairman of the city council committee in charge of the referendum:

[Begin Krupnik recording, in Russian fading into English translation] It was back in July this year that the city council ruled to stop dangerous factories. However, their decision was ignored by the central ministries, who control these chemical facilities. That is why we resorted to the referendum as the last means. The referendum will cost us more than R300,000. So we decided to add one more issue for discussion - about a free economic zone. [end recording] [passage omitted]

(Bogdan Sushinskiy), a writer, represents Odessa environmentalists, and here is his view: We should stop chemical production in the city because the ecological situation in Odessa has deteriorated and reached a critical point. Now this is among 10 Soviet worst polluted cities [as received]. If we want the city to be a national resort we must take drastic measures to protect its environment, said (Bogdan Sushinskiy).

(Aleksandr Pachiyev), deputy of the regional soviet, has a bit different point of view: [words indistinct] posed the problems promptly. These issues demand urgent solution indeed, but I think that referendum is not the way to solve them. We should be very careful so as not to discredit this important effective vehicle of democracy. I think it would be better to start practicing referendums on issues which have nationwide importance, said (Aleksandr Pachiyev), a deputy of the Odessa Regional Soviet.

The returns of the referendum are not published yet, so we shall report about the outcome in the forthcoming issues of Ukraine Today.

### **Pollution Monitoring Project Set Up in Nizhnyi Tagil**

PM1812165190 Moscow Television Service in Russian  
1530 GMT 15 Dec 90

[From the "Vremya" newscast: Report by M. Rafikov, identified by caption]

[Text] [Announcer] In Nizhnyi Tagil work has begun on setting up an integrated municipal ecological monitoring service.



[Rafikov] Monitoring is the term used to describe the automated air pollution monitoring system. It hardly needs to be said how necessary this is in Nizhniy Tagil. Tonnes of dust, soot, and gas are discharged, but there was no precise way of telling which enterprise was polluting the atmosphere and in what quantity. The creation of the monitoring service was initiated by the Tomsk Scientific Center, or more precisely its environmental technology and optics firm, with which the Nizhniy Tagil City Soviet Executive Committee has concluded a contract. The Siberians began work promptly. At first a plane fitted with apparatus circled the city many times and determined the level of air pollution at various altitudes. Next a mobile ecological laboratory came from Tomsk to Nizhniy Tagil: It took measurements at various industrial enterprises. The vehicle is equipped with a laser radar which makes it possible to determine the aerosol content of the air and instruments for gauging the gas content and its chemical composition. All the information is fed into the computer complex. The automated system for monitoring the condition of the atmosphere, which has a single computer center where at any moment it will be possible to obtain the necessary information on the ecological situation, will make it possible to promptly establish the source and extent of the damage that is being done. This knowledge is important because this year industrial enterprises in Nizhniy Tagil began making payment to the local budget for discharging pollutants. Perhaps rigorous economic levers will make enterprises work intensively on improving the city's ecological situation, which badly needs this.

#### Initial Actions of Baykal Commission Noted

91WN0113A Moscow IZVESTIYA in Russian 6 Nov 90  
Union Edition p 2

[Article by Vladimir Sbitnev, Ulan-Ude: "United To Protect Baykal"]

[Text] *Ulan-Ude was the scene of a meeting of ispolkom heads, environmental protection committee personnel and members of ecological committees under soviets in Chita and Irkutsk Oblast and the Buryat SSR [sic] held at the initiative of S. Shapkhayev, USSR people's deputy. They adopted a resolution on the so-called Baykal Commission and began the formation of that organization.*

The resolution states that the Baykal Commission is an international organization intended to plan and coordinate ecological policy within the Baykal region, which includes the Mongolian People's Republic in addition to the geographical administrative areas listed above. If one takes into account the fact that decisions made by the commission will be implemented via the corresponding structures of state authority, then one could say that what is now emerging is a kind of ecological "government" for the region.

It will be comprised of the deputy chairmen of executive organs, chairmen of ecological commissions and environmental protection committees, including those of parallel organs in the Mongolian People's Republic, and representatives of national and ethnic cultural centers and the Baykal Fund. This composition will make it possible to set priorities in socioeconomic, ethnocultural and ecological policy, to regulate economic activity and to establish a regional fund to finance major research and economic projects aimed at introducing ecological principles into the life of and all types of activities in a region of the planet which is of such great value to all humanity.

This somewhat unusual idea came was broached two years ago during the first All-Union social and ecological consultation on Baykal and took definite shape at a recent international conference entitled: "Human Beings Around Lake Baykal and Their Environment."

It is envisioned that on the basis of international agreements an international center for ecological protection of the Baykal region will be established. Within the limits of its activities and in close cooperation with UNESCO it will provide a focus for specific scientific potential aimed at ensuring ecologically sustainable cultural development of the entire Baykal region and creating models of interaction between society and nature.

The commission members were familiarized with a draft RSFSR law on Lake Baykal drawn up by A. Kazannik, USSR people's deputy. This unusual document, the first of its kind in our country, will be examined in greater detail at the next session of the Baykal Commission, which will be held a month from now in Ulan-Ude.

#### Baykal Pulp Plant To Be Closed in 1993

91WN0113B Moscow TRUD in Russian 3 Nov 90 p 1

[Article by A. Vyborov, Irkutsk: "The Decision Has Been Made"]

[Text] *Three years have passed since a government resolution was issued on reorganization of the Baykal Pulp and Paper Combine, but until now the question has remained open: will a pulp and paper combine continue to operate on Lake Baykal or not?*

Many years of debate were brought to an end with the conclusion of the Irkutsk Oblast Soviet's second session. The deputies decided to halt pulp production operations in the Baykal region as of 1 January 1993 and not to issue permits for any more ecologically harmful production facilities on the shores of Lake Baykal in the future.

What about the combine's workers? A solution to this problem is not clear, but one must be sought. There are already plenty of proposals regarding their future. The Swedish-West German firm IKE is proposing the establishment of an environmentally safe furniture plant here, the International Red Cross wants to begin manufacturing disposable syringes and Coca-Cola has promised to begin production of diet drinks made from herbs and berries found in the Baykal region.



**Underperforming Kamchatka Power Plant Hurts Residents, Environment**

*PM3112144390 Moscow Television Service in Russian  
0930 GMT 24 Dec 90*

[From the "Vremya" newscast: Report by V. Plotskiy, identified by caption, from Petropavlovsk-Kamchatskiy]

[Text] [Announcer] There are all kind of anniversaries—joyous and sad, global and local. The fifth anniversary of the Kamchatka TETS-2 [Heat and Electric Power Station] can be described only as a paradoxical anniversary.

[Plotskiy] Kamchatka power industry project builders took just over three years to build and breathe life into this strange apparition on the outskirts of Petropavlovsk-Kamchatskiy. It cost about 130 million rubles [R]. Five years have passed now, and the station is working to only 30 percent of its capacity, while Petropavlovsk, and especially its northern districts, are experiencing an acute shortage of heat. Why is this? Let us find out.

First of all, it has to be said that at present it is clearly disadvantageous for power industry workers to supply heat to people's apartments. Direct losses sustained by the "Kamchatskenergo" rayon power administration as a result of providing heat and hot water to residential quarters alone will total in excess of R1,800,000 this year.

Inhabitants of the northern part of Petropavlovsk waited impatiently for the commissioning of the new power

complex. The city is literally swathed in heat supply lines. But nothing has changed. Just like in the past, dozens if not hundreds of boiler house stacks are belching smoke. Just like in the past vast quantities of coal and heating oil are burned in these boiler houses.

[Unidentified official, later referred to as first deputy mayor of Petropavlovsk] Certain establishments such as the "Kamchatrybprom" and our main construction enterprise—the "Kamchatstroy" Association—cannot agree on the closure of individual boiler houses. The supply lines have already been laid. Nor has the "Kamchatstroy" been able to solve the problem of the construction of its own boiler house in a planned neighborhood in the immediate vicinity of the association itself.

However, in general I can say that heat supply to the residential rayons which are administered by the city soviet executive committee is assured.

[Plotskiy] Is the statement of the first deputy mayor of Petropavlovsk not a trifle too optimistic? And is this optimism not based on the fact that God has been kind to Kamchatka, as the saying goes, up to now. After all, there have been no severe frosts this winter as yet, nor any of the traditional Kamchatka blizzards. However, taking a sober view of the situation in which the TETS, which has cost the state R130 million, finds itself, you get the impression that it will work at 30 percent of its capacity for many years to come, while the numerous boiler houses continue to poison the atmosphere of Petropavlovsk and its surroundings.

## REGIONAL AFFAIRS

**Council of Europe Environmental Plans Outlined**

91AN0067A Brussels EUROPE in English  
17 Oct 90 pp 11-12

[Article: "Council of Europe/Environment: Results of the Brussels Meeting—Towards a Convention on Soil Protection—Extension of the Bern Convention?—New Participants"]

[Text] Brussels, Tuesday, 16 October 1990—At the invitation of the Belgian State Secretary for the Environment and Social Emancipation, Mrs. M. Smet, the Council of Europe held its 6th triannual conference of Environment Ministers in the Belgian capital on 11 and 12 October. For the first time, the conference was attended by representatives from Czechoslovakia, Hungary, Poland, the USSR, Yugoslavia, Burkina Faso, Morocco, and Tunisia.

Opening the conference, the secretary-general of the Council of Europe, Mrs. Catherine Lalumiere, declared that the Council of Europe will from now on be able to give more strength to its actions in favour of the environment since the values for which it has fought for 40 years (democracy, human rights, state of laws) are now, on the whole, respected throughout the continent. "Environmental protection is becoming the major challenge of the end of the 20th century," Mrs. Lalumiere added, calling on the participants to go beyond mere routine, "especially since public opinion is on your side." According to her, the Council of Europe can play an important role in resolving the legal problems involved in environmental protection.

It has, in fact, acquired unique international experience in the field of harmonisation as regards law texts: At the close of two days' work, the ministers decided to adopt a progressive action plan for an overall and integrated policy for soil protection.

On the other hand, the ministers estimated that it would be useful for the Bern Convention (relating to the conservation of wild life and the natural environment) to be progressively extended throughout Europe. They called upon the Permanent Committee of this Convention to study, in particular:

- a. The problems posed by an extension of the Convention towards Africa (new species to protect, cost and financial effects, criteria for extension to new countries);
- b. The cost of habitat protection; and
- c. The consequences that work underway will have on other agreements that may exist, to be examined in consultation with international organisations or states concerned. (EUROPE recalls that the EC Council has a draft proposal on the table relating to the protection of fauna and flora.)

Furthermore, the ministers consider it necessary to reinforce financial means for the correct functioning of the Bern Convention and have decided:

- i) To recommend that the Council of Ministers grant adequate means to this activity; and
- ii) To invite all contracting parties to finance, through voluntary contributions, specific activities undertaken in this context.

Ministers also adopted a Recommendation relating to the European conservation strategy, including a series of principles to be used by the governments and which includes, notably in its sectorial aspects, various measures for soil protection.

Finally, the ministers had an exchange of views on the draft convention for repairing damage caused to the environment which is currently on the table of the Committee of Ministers. As proof of the interest they show in this, the ministers proposed that this text be developed by a joint committee of ministers of justice and the environment. At the appropriate time, it will be decided whether a joint conference of ministers of justice and the environment should be convened for the joint examination of this draft convention.

Liechtenstein has invited the environment ministers of the Council of Europe to hold the seventh three-yearly conference in its Principality.

**Environment Commissioner Ripa di Meana on EC Policy**

91WN0133A Milan MONDO ECONOMICO in Italian  
3 Nov 90 pp 54-55

[Article by P.F.: "Ecology Will Help the Economy"]

[Text] Implementation of the Single European Act, which contains a section dealing with ecology, has reinforced the bases of the European Economic Community's action in this area. The Commission plans to create a European measurement and control network entrusted with collecting data, evaluating scientifically the damage done to the environment and estimate risks involved. Carlo Ripa di Meana, EEC commissioner for the Environment and Civil Protection, was asked some questions by MONDO ECONOMICO regarding the policy of the Twelve on the subject of ecology.

P.F.: Up to now, it was the EEC countries that appeared the most ardent espousers of a drastic reduction of gasses linked to the greenhouse effect. On which negotiating bases could an accord be made with the United States that does not involve the usual well intentioned promises lacking in concrete results?

Ripa di Meana: A disagreement exists with the United States over the subject of environment. Washington does not appear prepared to assume financial obligations for a reduction of the so-called greenhouse effect, requesting additional proof on the subject of cause-and-effect

linkage between carbon dioxide emissions and the greenhouse effect. As if we didn't already have enough proof! The European Community is prepared to assume its own responsibilities. We must also think in terms that every decrease of carbon dioxide would also have a positive ripple effect in other fields; against acid rain, for example.

P.F.: But what "price" will be needed to pay for clean air?

Ripa di Meana: At this juncture we should avoid another misunderstanding. The fight against polluting agents is not to be viewed as a onerous price to be paid on the altar of economics, a punitive measure aimed against our industries. Reducing carbon dioxide means saving energy, being able to survive the initial shock of the oil crisis, avoiding that earlier traumatic experience, because today we are psychologically prepared.

P.F.: Shifting our focus to the internal aspects of EEC countries, what challenges need to be overcome to reach a common position on international negotiations on climate?

Ripa di Meana: Our decision to stabilize carbon dioxide emissions up to the end of the century in order to reduce them at a later date, means sacrifices to be made by the Twelve. If everyone, however, accepts the final goal, one cannot ignore the fact that there are differing perceptions which are explainable by uneven degrees of economic development. How can one deny the differing environmental sensitivities of Greece, Spain, and Portugal when compared to those of Denmark, Germany and The Netherlands? One needs to find the right key in order to bring about an equitable sharing of sacrifices necessary to consume less energy; a sharing of burdens that takes into account the different social and economic development of each member state. Under the rubric of environmental emergency, the awareness of public opinion has increased also in Italy, a country that once was at the end of the line in such matters.

P.F.: How will the European Agency for the Environment, proposed in 1989 by the Commission to the Council of Ministers of the Twelve, function?

Ripa di Meana: The Agency for the Environment will be an instrument of core importance for the Commission, for the member states and for all those involved with the environment. With respect to what exists today, the situation represents a notable qualitative jump. The agency will dedicate its efforts to a whole gamma of new subjects linked to the totality of the ecosystem, like the quality of water, of air, and the problem of refuse. The agency will also welcome the participation of other states, allowing the strengthening of international cooperation in matters of environment. In addition, it will be entrusted with tracking the record of pollution in Eastern Europe, a necessary premise in order to search for valid remedies. At this point, on the eve of the European Council meeting in Rome, I must again launch an appeal so that member states reach an agreement in finding an

agency headquarters. The agency's actual coming into being, in fact, is being stymied by this matter. While it is an important matter, it is secondary in importance with respect to the urgency needed to quickly constitute an indispensable instrument for safekeeping the environment. It is my desire that the Italian Office of the President move to resolve this paradoxical situation.

#### **Cooperation Agreement To Protect Atlantic Coast Signed**

91WN0071A Paris *LE MONDE* in French  
19 Oct 90 p 34

[Article by special correspondent in Lisbon Francois Grosrichard: "Four Countries Sign Cooperation Agreement to Protect Environment in Northeast Atlantic"; first paragraph is *LE MONDE* introduction]

[Text] The ministers of Portugal, Spain, Morocco, and France and the EC environmental commissioner signed an agreement on 17 October in Lisbon to cooperate in protecting those countries' coasts against possible pollution from the maritime transport of dangerous substances. The agreement covers the waters of the Northeast Atlantic and completes the series of accords on the Channel, North Sea, and Mediterranean.

The Lisbon government launched a diplomatic offensive resulting in the 17 October accord following last winter's oil tanker accidents off the Moroccan and Iberian coasts and the serious oil slick that polluted the Portuguese island of Porto-Santo in the Madera archipelago.

#### **Exchange of Information**

The signatories have promised to exchange as rapidly as possible any information they possess on the treatment of harmful substances spilled at sea, available dispersion products, the coastal areas that are particularly vulnerable, the stock of floating dams and, with respect to finances, the plan for reimbursing costs should one of the four countries be called on to assist one of its partners.

In the case of the wanderings of the Iranian oil tanker Kharg-5, which no port was willing to take in, and the oil slick in Madera, France ended up assisting Morocco and Portugal, notably through the CEDRE (Center for Documentation, Experimentation, and Research on Water Pollution) in Brest. The center will become Europeanized in 1994.

The French maritime minister, Mr. Jacques Mellick, indicated that, in order to better track ships and learn the nature of their cargo, he had put a proposal to the International Maritime Organization, headquartered in London, requiring captains to notify the presence and identity of their ship whenever they enter particularly tricky or well-traveled waters.

Moreover, he gave the nod to Morocco regarding its request to be included in the international conference

scheduled for March 1991 in Paris. France has invited 14 European countries to this meeting on maritime-transport safety.

### **EC, Czechoslovakia To Clean Up Elbe River**

91AN0066A Brussels EUROPE in English  
17 Oct 90 p 11

[Article: "Environment: The European Commission Signs the International Convention To Protect the River Elbe"]

[Text] Brussels, Tuesday, 16 October 1990—The European Commission has just signed the convention for the protection of the Elbe River against pollution, together with Germany and Czechoslovakia. It is the first time that the EEC has signed an international convention with the newly united Germany. It is also the first agreement between the EEC and one of its Member States and an Eastern country. The EEC has a strong role to play in this international waterway convention with regard to its legal and political competences and with regard to the aid given through the PHARE [Poland-Hungary: Assistance To Restructure the Economies] programme. On the occasion of the signing ceremony, Mr. L.J. Brinkhorst, director general at the Commission, declared that "the importance of the participation of the EEC cannot be seen alone from the legal or financial angle but lies in the political dimension. These trans-boundary waterways such as the Elbe are an example of the many European links we have in the environment. The EEC, by joining this agreement, wants to emphasize its solidarity as a European partner."

The signing of the Convention took place in Magdeburg in Sachsen-Anhalt, the future seat of the Secretariat of the Elbe Commission. This commission will lead and coordinate the work to improve the water quality of the Elbe. The EEC will contribute a large part of the Elbe Commission's budget.

## **AUSTRIA**

### **Vranitzky 18 Dec Address on Ecology**

AU1812132890 Vienna Television Network in German  
1010 GMT 18 Dec 90

[Government statement delivered by Chancellor Franz Vranitzky in Vienna on 18 December—live]

[Excerpts] [Passage omitted] The activities of the Federal Government during the past four years were characterized by the comprehensive modernization of Austria, which is to be continued now. In this connection, we must take into consideration a number of new challenges that did not exist all four years ago, or which did not exist in the present form. The international development is the most decisive aspect. It is characterized by the overdue opening up of Eastern Europe, whose intensity, however, came as a surprise, and by the increasing

integration in the Western hemisphere, which exerts a growing influence on our country as well.

An equally important challenge is environmental protection, which is becoming increasingly urgent, and for which we are developing growing sensitivity. As a topical example, I would like to mention the Bohunice Nuclear Power Plant [CSFR] near the Austrian border. [passage omitted]

Austria has taken numerous measures to protect the environment, which have made our country a model in Europe and in the world in the sphere of environmental protection. It is important to maintain this status, not out of misunderstood competitive reasons but because we want to remain an authority in the sphere of environmental protection. We want to use this authority internationally to an increasing extent. We have recently been confronted with the vulnerability of the international system in connection with environmental protection. The greenhouse effect and the ozone hole are not mere phrases for us but phenomena which we must fight internationally with all possible means that are at our disposal. The most recent report on the Bohunice Nuclear Power Plant near the Austrian border has shown that the protection of our environment cannot stop at our borders.

For this reason, we have decided to give particular priority to international efforts designed to protect the environment. We will resolutely advocate a Central Europe free of nuclear power plants and the adoption of a convention for the protection of the Alps, and we will make an important contribution to the creation of an international environmental charter. [applause] [passage omitted] Ladies and gentlemen, new political qualities are also required in Austria's foreign policy, in order to take account of the fundamental changes in the sphere of foreign policy. These changes affect primarily the European area, but in areas outside Europe Austria's foreign policy is also faced with new situations. In this connection, the Federal Government will be guided by increasing international solidarity and coresponsibility, and will observe the obligations and principles that result from the constitutional law on permanent neutrality and neutrality policy as a stabilizing element of the European order.

The acceleration of the integration process within the EC has confirmed the correctness of the policy the Federal Government has pursued so far. Thus, achieving Austria's full membership in the EC continues to be a priority task. In this way, the government wants to ensure that Austria can participate in and influence the future-oriented developments within the EC as an equal partner as soon as possible.

I have repeatedly pointed out that integration is not static, but that it must be understood as a dynamic process. We view the project of a political union as a positive contribution to the realization of the unity of

Europe, and will, on the basis of neutrality, participate in solidarity in a future European security system within and beyond the EC.

In this connection, one must not overlook the fact that integration, in a comprehensive sense, is not limited to the EC, but that all-European cooperation is supported by a number of organizations and institutions which give structures and a form to this development. It is natural for the Federal Government to participate actively and in a committed manner in all these institutions. This applies to the CSCE as the central starting point for an all-European state of peace, as well as to the Council of Europe, the OECD, or ECE [Economic Commission for Europe], whose activity has assumed a new dimension and new significance through the changes in Central and Eastern Europe.

Austria will assume particular responsibility when it assumes chairmanship of the European Free Trade Association [EFTA] in the first half of 1991. During this period, negotiations between EFTA and EC on the creation of a European economic area will enter a decisive phase. In the awareness of this responsibility, the Federal Government will pursue the chairmanship in a committed and dedicated manner.

During the past year, our neighbor states in Central and Eastern Europe liberated themselves from their communist regimes in a spectacular process of peaceful revolution. Because of our geographic situation, but also because of our numerous human and cultural ties with these states that have grown over the years, we were well aware of their tragic situation in the past. Therefore, we welcomed their liberation and their return to the community of democratic states with great joy. However, this also entails the special responsibility to provide assistance to them as partners and friends in their difficult program of restructuring, and to contribute our share, so that their political and economic restructuring becomes a successful chapter of the history of Austria and Europe. [applause]

The Austrian Government is perfectly aware of this responsibility and will meet it in its work. It will therefore actively support the these countries' development toward the market economy which ensures economic efficiency, environmental protection, and social welfare.

The unification of the formerly divided German states deserves to be mentioned as an event of special political importance. Being vividly aware of our history, the Austrian Government welcomes this development and is looking forward to good neighborly cooperation in all matters of bilateral interest and within the all-European framework.

However, while we pay special attention to the changes in our neighborhood, we can and will not neglect the global orientation of Austria's foreign policy. Europe itself depends on international contacts more than other continents, and is embedded in international policies. We would not render a good service to ourselves or to

our European policy, if we failed to meet—or were to meet insufficiently—our international responsibilities by concentrating on Europe too much.

Therefore, the Austrian Government has once again set the task for itself to actively cooperate within the United Nations Organization and its special organizations. At a time when, owing to changes in East-West relations and after the end of the Cold War, a new world order and a collective security system are taking shape, Austria will have an opportunity, as a Security Council member, to work to ensure peace and settle conflicts.

In addition, the Austrian Government will intensify its relations with the Third World states, and will take an active part in the North-South dialogue. The quality and quantity of Austria's contribution to development and cooperation must be considerably improved.

Our efforts over many years for the total fulfillment of the Paris agreement and the autonomy package for South Tyrol will possibly be concluded successfully. It is therefore in order to state here today that Austria will continue its protective function for South Tyrol on the basis of the Paris agreement and the Act of Execution also after the statement on the settlement of the conflict has been issued. [applause] [passage omitted]

It is an important concern of our policy to intensify contacts with Austrians living abroad. I want to stress in this context that the Austrian Government expressly ascertains its solidarity with those Austrian citizens who had to leave our country prior to and during World War II, so as to escape persecution by the Nazi regime. We are aware of their sufferings and our responsibility. These Austrians are an important part of our identity, and we are happy about anyone returning home as a visitor or for good. [applause]

The alarming technical state of nuclear power plants on the other side of the Austrian borders shows that the traditional, predominantly nationally-oriented understanding of environmental policy has adopted an additional border-crossing aspect. Austria has in the past always spoken up when it was necessary to point out this dimension.

While Austria's giving up the use of nuclear power was a widely-noted signal, our country's uncompromising position on the transit traffic issue even made the EC reconsider the existing traffic principles. The Austrian Government intends to continue to play this role with dedication within the international community. Special priority will be given to those measures which are aimed at reducing the dangers that nuclear power plants near our borders and obsolete emission-intensive reactors constitute to the Austrian people. Together with the neighbor countries concerned, the Austrian Government will, as soon as possible, draft options for actions, allowing these countries to switch to environment-considerate forms of power production and power consumption. The Austrian Government assumes that the CSFR in particular will not be able to carry out this change on



its own strength, and therefore states its readiness to offer relevant aid. [applause]

However, we must state that the threat of nuclear power plants, to which the people are exposed, is not an Austrian but an all-European problem. It can therefore only be resolved by joint efforts of all European states, and the highly industrialized countries in Central and Western Europe have to bear special responsibility in this respect. In meeting these new environment policy challenges, the Austrian Government will support common activities of the industrial states, aimed at combating the greenhouse effect, in particular by creating an international environment fund, and measures for the protection of the Alps and for the prevention of border-crossing pollutants. [passage omitted]

## FRANCE

### National Plan for Environment Presented

91WN0072A Paris AFP SCIENCES in French  
11 Oct 90 pp 59-60

[Text] Paris—Environmental Minister Mr. Brice Lalonde presented the broad outlines of his National Environmental Plan (PNE) to the National Assembly on 9 October. "The need to deal with ecological issues is reasserting itself full force in our country," said the minister at the outset, noting that renewed economic growth "was not neutral for the environment." The growth took place in a "context of ecological disarmament."

Mr. Lalonde stated that the PNE goals for environmental policy at century's end would definitely carry a "reasonable" price tag for the French: 1.9 percent of GDP, instead of today's 1.3 percent, he stressed.

In his speech, the environmental minister especially denounced "the crucial problem of transportation." "It is a problem that involves air pollution, noise reduction, climate changes, and the protection of natural species. All these ecological concerns must be integrated before arriving at any choices about transportation."

Thirty-six speakers discussed aspects of the PNE until late into the night. The environmental minister was seated alone at the front bench when the Savoie deputy Michel Barnier, who recently proposed "100 measures to protect the environment" in a report, took on the problem of nuclear power. The latter's "peculiar absence" from the plan was deplored by Mr. Rene Couanau (UDC), the Ile-de-Vilaine deputy.

### The Nuclear Question

"For too long I have been struck," said Mr. Michel Barnier, "by the silence and murkiness that surround the nuclear question in our country. Nothing excuses this lack of openness. Your plan may prove to be a lost opportunity (...) there is a feeling of incompleteness and fragility to it," Mr. Barnier deplored. He regretted that

Brice Lalonde did not propose instead a vote on a major orientations law, rather than a simple debate. "It is probably," he said, looking at the empty front bench, "because the government is not 100-percent behind your objectives."

Mr. Roger Gouhier, (CP—Seine-Saint-Denis) denounced the "perverse effects" of the polluter-pays principle that Brice Lalonde would like to extend and shore up.

"The real question," declared Francois-Michel Gonnot (UDF, Oise), "is whether the government will have the courage to make the mental transition that these objectives call for" (the PNE objectives). The former minister of the environment Michel Crepeau (SP member, Charente-Maritime) told Brice Lalonde: "Until you have control of trees (Agriculture) and water (divided among several departments), you will be a minister of meager resources."

### The New Field Organizations

Tacked on to the PNE at the last minute on 8 October, the reform of divisions outside the Ministry of the Environment provides for the creation of regional divisions of the ministry.

However, on the departmental [administrative units into which French territory is divided] level, establishment of the sort of new Environmental divisions that the minister Brice Lalonde would like to see is not yet an established fact. But an experiment to combine within one organization the traditional DDAs (Departmental Agricultural Divisions) and DDEs (Departmental Equipment Divisions) will be carried out in 15 departments for six months.

The two divisions are responsible, notably, for policing water quality following the addition of a new Environmental unit, whose special mission is to look into water and waste problems. The experiment will be gotten underway rapidly, so that an assessment can be made next summer: Its result will determine whether or not the formula will be extended and whether departmental resources will be shored up to deal with environmental issues.

Yet the creation of "Regional Environmental and Nature Divisions" must still be ascribed to the government's desire to give a new, territorial dimension to the Ministry of the Environment. The old DRAEs (Regional Architectural and Environmental Divisions—a total of 420 agents) are going to see their work expanded substantially. They will be joined by the SRAE (Regional Water-Planning Division), recovered with some difficulty from Agriculture (330 agents), and by the centralized hydraulic divisions (200 agents) which until now had fallen under Equipment.

Environment's desire for a tripartite merger involving the DRIRs (Regional Industry and Research Divisions)

did not materialize. Nonetheless, a sort of co-management of these divisions in charge of monitoring classified installations will be instituted, with the nomination of an Environmental deputy to the DRIRs. The word environment will also be added to the divisions' names.

The Ministry of the Environment will be responsible for a total of nearly 1,600 agents out in the field (including 625 inspectors of classified installations). Another 125 new jobs will be added to that figure by the National Environmental Plan.

### Environmental Agency Created

91WN0141A Paris LE MONDE in French  
2-3 Dec 90 p 7

[Article by J.-L.S.]

[Text] On Thursday night 29 November, the deputies passed the bill establishing an agency for the environment and the management of energy. The text had already been approved by the Senate. The bill was adopted by a vote of 321 (PS [Socialist Party] and UDC [Union of Central Democrats]) to 222 (RPR [Rally for the Republic] and UDF [Union for French Democracy]). The Communist group abstained.

The bill, submitted by Brice Lalonde, minister delegate of the environment, is intended to combine the resources of three existing agencies: the National Agency for the Recovery of Waste Products (Anred), the Air Quality Agency (AQA), and the French Energy Management Agency (AFME), which is by far the most important of the three.

During the debate, Minister of Industry Roger Fauroux announced that a thorough study of the three current agencies had been entrusted to a pilot committee and that its conclusions would be submitted this coming 15 January. To calm the fears of the personnel, the government accepted an amendment submitted by Mrs. Huguette Bouchardeau (allied with the PS, Doubs) to the effect that "the working and pay conditions" applying to personnel in the future agency are to be "harmonized" before the end of 1991.

The National Assembly also threw out a provision introduced by the Senate that would have created a "supervisory committee" on which members of Parliament would have formed the majority. But on the proposal of Claude Birraux (allied with the UDC, Haute-Savoie), it then set up a "scientific council," the makeup of which will be decided jointly by the ministers of the environment, research, and industry.

### Report on Water Pollution Published

91WN0141B Paris LE MONDE in French  
2-3 Dec 90 p 7

[Text] The National Assembly's committee of inquiry on water pollution and the national policy for the development of water resources published its report on Friday

30 November. Guy Malsain (PS [Socialist Party], Yvelines) was committee chairman and Gilbert Millet (PCF [French Communist Party], Gard) was rapporteur. The RPR [Rally for the Republic] members of the committee did not approve the nearly 400-page report. They felt that it was "biased in the direction of too much planning." They said: "We do not approve of the denunciation of the Common Agricultural Policy as glimpsed through the report, and we stress the somewhat simplistic nature of the link established between the development of what is described as 'intensive' agriculture and pollution by nitrates." The UDF [Union for French Democracy] members of the committee did the same by expressing reservations as to the form and substance of the report. For its part, the UDC [Union of Central Democrats] chose to abstain.

In his conclusions, the rapporteur asserts the necessity of and urgent need for planning in connection with water policy: "This is a major national issue with very important economic and ecological stakes." He also expresses the hope of seeing the elected assemblies (departmental and regional) associated more closely with the operation of the committees and basin agencies.

## GERMANY

### U.S. Army Faulted for Environmental Damage

91WN0142A Berlin TAGESZEITUNG in German  
26 Nov 90 pp 1, 3

[Article by Gerd Nowakowski: "The Extent of Contamination at U.S. Military Bases in Germany—The Poisonous Price of Friendship"]

[Text] Considerable environmental damage has been determined at 358 of the sites used by the U.S. Army in the FRG. This is evident from a report available to the TAGESZEITUNG. The contamination of ground water and soil is so serious for 26 of these sites that the U.S. Army anticipates between \$1 million and \$16 million each in cleanup costs. The pollution is the result of improper handling of gasoline, oil, lubricants, chlorinated hydrocarbons, and other chemicals at U.S. barracks courtyards, tank farms, workshops, shooting ranges, and waste dumps used by the military.

This horrible tally does not even include the ecological damage at U.S. Air Force installations in Germany. In "preliminary estimates" the U.S. Army expects the cleanup costs to be \$162 million. The total actual cost including damage by the Air Force is likely to be considerably greater, of course. The U.S. Defense Department mentioned the sum of \$580 million as early as 1988. The Americans are now trying to shift the costs to the Germans by way of the NATO infrastructure program.

Peace researchers are accusing the FRG of inaction and are demanding the establishment of an official site list of old liabilities.

The Soviets, who leave behind an incalculable measure of environmental pollution on the territory of the former GDR, are not the only ones to do so. The U.S. Army as well has thoroughly contaminated ground and water at its their German installations with oil, gasoline and lubricants. This is evident from an internal U.S. Army report which has now been presented. The military would rather not know about the extent and costs of this. And there is a reason for that, because, in the Pentagon's opinion, the Germans should pay.

Carl J. Schafer, deputy assistant secretary at the U.S. Department of Defense, also was not prepared to comment to the members of the House of Representatives on a study of environmentally hazardous contamination at U.S. military installations outside the United States. Making this public "could jeopardize our relations with these countries," was the reply Congressman Mike Synar received in November 1987, when he asked about the reason for keeping the study secret. Even today, the 1986 study is classified confidential. That the U.S. government's concern involved primarily negative reactions from the FRG—with about 240,000 soldiers the principal basing country for the U.S. Armed Forces—may be taken as certain.

Only the first signs are visible of the extent of the contamination which has taken place in the FRG in the past 40 years at the camps and barracks of the U.S. forces. But new information emphatically confirms Congressman Synar's suspicions at the time that the U.S. forces in their overseas barracks stubbornly ignored ground water contamination and other environmental hazards. As is evident from an internal U.S. Army report now available, an initial comprehensive balance sheet in the spring of 1989 included approximately 300 suspected contaminations—and the trend is growing. In October 1990 a new stocktaking already produced 358 polluted sites. But there can be no question of a comprehensive picture. "The information situation is constantly changing," the report admits.

#### **'Foot-Dragging' Search for Environmental Damage**

Behind the dry words, the Army report reveals with horrible clarity what is going on at U.S. military installations in the way of potential danger: Around barracks, workshops, military dumps, and training facilities chlorinated hydrocarbons, acids, decontamination mixtures, deicing fluids, and ammunition residue, as well as gasoline, oil, and lubricants of all kinds have seeped into the soil. The "presently estimated" cost of cleaning up the environmental damage would amount to about \$162 million, according to the very cautious wording. At 26 facilities, the Army report calculates, costs of more than \$1 million must be anticipated. [See boxed item.]

But this includes only some of the dangers that threaten, since the alarming report includes only the sites of the ground forces, not the Air Force. It is no different at U.S. Air Force bases, however. At the Bitburg airbase, for example, a large quantity of chemicals and solvents has

seeped into the water courses. At the Rhein-Main base at Frankfurt, a gigantic kerosene pocket was found to have been collecting for decades—a result of the leaky fuel tanks of the U.S. Air Force.

It is not known what the picture is at other U.S. air bases. The Air Force troops were not particularly eager to take stock. The Air Force, writes even highly placed Pentagon official William H. Parker in October 1988 in an internal report, so far has "dragged its feet" in searching for environmental contamination.

The problem which the FRG faces must therefore be estimated by comparing the figures that have become known. The U.S. Army itself will already have spent 972 million German marks [DM] for cleanup jobs since 1984. Since 1987 another \$25 million are said to have flowed from an "environmental compliance fund," primarily for cleanup of soil and ground water.

#### **Ignorance Is the Best Defense**

In the discussions about the 1989 U.S. budget, experts estimated \$126 million for eliminating environmental pollution in the FRG, funds that are to be distributed over the next five years. The fact that this sum is not enough is also likely to have been clear to the U.S. budget experts, because a short time earlier they had internally estimated the costs of eliminating environmental hazards in the FRG at \$580 million. In view of the still missing overall picture, it is a safe bet to assume that this figure as well is too low. Even at the Pentagon itself, one apparently thinks in the range of several billion dollars.

The Air Force's hesitation in listing the environmental damage makes sense against the background that there is not sufficient money available for cleanup. It would only lead to trouble with the German authorities if they determined that the Air Force knew about the pollution and didn't do anything about it, as Parker cited the position taken by the staff chief of the U.S. Air Force in Europe, George Harrison. The apparent conclusion: Ignorance is still the best defense.

The reason for the lack of readiness on the part of U.S. parliamentarians to approve funding for the cleanup work is obvious: There is a dispute over who has to pay. As early as 1980 the United States wanted DM2 billion from the [FRG] Federal Government in order to eliminate a general package of environmental burdens at the German sites. The Federal Government declined and in September 1990 again stressed that financing the environmental measures was wholly up to the Americans. The Armed Forces had to comply with the regulations of German environmental law for the sites given them.

The Americans are still of a different opinion regarding this. They recently made the proposal that cleanup measures should be financed by the NATO infrastructure program—which would only amount to a detour in bleeding the German taxpayer. Until now the Federal

Government has avoided taking a position on this proposal and has only admitted that it is being discussed at the present time.

#### Americans Playing for Time

"The Federal Government does not have any idea what it looks like at the U.S. sites and also does not want to know," criticized peace researcher Olaf Achilles, who has occupied himself with the subject for years. The founder of the working and research establishment, Military, Ecology and Planning (MOeP), thus accuses the Federal Government of acting as "a stooge for the Americans in creating an area exempt from law," instead of insisting on and monitoring compliance with German environmental regulations. What is necessary is immediate preparation of an expert environmental report on all military sites of the U.S. Armed Forces, in order to get a complete picture of the old liabilities, according to Achilles, at this time also a Green candidate for the Bundestag from Lower Saxony.

The criticism of the Federal Government's reticence is perhaps not inconvenient for the Americans. They can play for time—with the statute of NATO forces on their side. Payment of damages after giving up U.S. installations can only be considered if negotiated with the Americans before their departure. But he who doesn't know also cannot lodge complaints. If the Federal Government continues to stay inactive, the population will not only have to suffer from the dangerous legacy, it will also have to pay for its removal out of its own pocket.

[Box, p. 3]

#### Cleanup of the Sites Will Cost Between \$1 Million and 16 Million: The "Worst Sites"—the Most Contaminated Properties After 40 Years of U.S. Stationing in the FRG.

The U.S. Army has listed 358 contaminated sites in its internal stocktaking. For the following 26 sites the Americans are assuming that the cost of eliminating the environmental damage will amount to more than \$1 million each. Nearly all the figures given are estimates, in part without precise knowledge of the extent of the pollution; the exact cost could therefore be much higher.

#### Baden-Wuerttemberg

- Goeppingen/Cooke Barracks: Contamination of the soil from gasoline, oil and lubricants. This year a study will be undertaken to evaluate the pollution. Estimated cleanup costs: \$1.2 million.
- Karlsruhe/Neurut Tank Farm: Contamination of the soil from gasoline, oil and lubricants. Estimated cleanup costs: \$1.6 million.
- Germersheim: Soil and ground water polluted in the 1970's by a leaky heating oil tank. The costs of cleaning up the contamination from several hundred cubic meters of heating oil discovered in 1968 are estimated at \$16 million.

—Schwetzingen/Tompkins Barracks: The ground water and the soil were contaminated by a motor vehicle depot operated in the middle of the protected water area. Estimated cost: \$2 million.

—Mannheim/Taylor Barracks: The chlorinated hydrocarbons used in the workshops have polluted a nearby protected water area. The cleanup work, under way since 1985, will cost a total of \$10 million.

#### Bavaria

- Grafenwoehr: Discharge from a military waste dump has contaminated drinking water sources. The estimated cost of the work, begun this year, is around \$10 million.
- Grafenwoehr: Soil and ground water were contaminated by the former Washrack waste dump. The extent of the contamination is still being studied. Preliminary cleanup costs: \$2.4 million.
- Grafenwoehr: The ground at a firing range is contaminated with lead from ammunition residue. A study is to be undertaken in 1991. Cleanup costs: estimated at \$5 million.
- Hohenfels: Pollution from a military waste dump. A study of cleanup and recultivation was made last year. Estimated cleanup costs: \$8 million.
- Nuremberg: The chemical cleaning carried out at the Johnson Barracks until 1980 contaminated the Fuerth drinking water supply with chlorinated hydrocarbons. Studies of the cleanup have been completed, but the decontamination work has not yet started. Estimated costs: \$2.1 million.
- Vilseck: Cleanup work is to begin in 1991 on the military waste dump closed in 1975. Decontamination costs: \$5 million.
- Wuerzburg: Leaching from the military dump which was closed last year has reached the soil and ground water. Cleanup costs are estimated at \$1.4 million.
- Wuerzburg: Chlorinated hydrocarbon materials from chemical cleaning at the Faulenberg Barracks have contaminated a Wuerzburg drinking water well. Estimated cleanup costs: \$1.1 million.

#### Rhineland-Palatinate

- Bad Kreuznach: Chlorinated hydrocarbon substances originating from the chemical cleaning plant at the Marshall Barracks polluted the city's drinking water wells. The cleanup work began as early as 1987. The total cleanup costs are set at \$1.1 million.
- Bad Kreuznach: At the tank farm of the Marshall Barracks, gasoline, oil, and lubricants have polluted the soil and ground water. A study to ascertain the possibilities of cleanup will be undertaken in 1991. At this time the costs are estimated at \$2.5 million.

- Bad Kreuznach: The motor vehicle workshops of the Rose Barracks have contaminated the subsoil with gasoline, oil and lubricants. A study planned for this year of the contamination discovered in 1988 is to determine the cleanup method. At this time the U.S. Army estimates the costs at \$3.5 million.
- Kaiserslautern: In three places on the grounds of the Rhine Ordinance Barracks—the motor vehicle workshops, the tank farm, and a mechanical workshop—the soil and ground water have been contaminated by improper use of gasoline, oil, and lubricants. At present a study is being done on the extent of the pollution.
- Kaiserslautern: On the grounds of the Army Depot, improper storage has led to contamination from chlorinated hydrocarbons, gasoline, lubricants, and oil. The extent of the damage is being studied at the present time. The cleanup costs are estimated at \$2.5 million dollars.
- Landstuhl: A study planned for an undetermined point in time is to report on the extent of the contamination from the military dump operated until 1985. The estimated cleanup costs are around \$1 million.
- Eselsfuert: The chemical cleaning that has been closed down since 1987 has polluted the ground water and the ground with chlorinated hydrocarbons. The partially eliminated contamination will cost \$1.5 million, according to Army information.
- Kleber Barracks: The motor vehicle depot located in the protected water area has contaminated the ground water with gasoline, oil, and lubricants. The cleanup work, which has been under way for six years, will have cost \$2.4 million when completed.
- Mainz: The ground water and soil contamination from chlorinated hydrocarbons at the Gonzenheim Army Depot was discovered as early as 1986. A cleanup study was undertaken; the cleanup work was to have started in 1990. The estimated cleanup costs amount to \$10 million.

## Hesse

- Darmstadt: Chlorinated hydrocarbons from the motor vehicle workshops of the Babenhausen Barracks have caused pollution in soil and ground water. A study concerning the extent of the contamination was done in 1989 and the cleanup is set to begin in 1991. Estimated cleanup costs: \$1.2 million.
- Giessen: A military waste dump closed in 1988 is presently being studied in order to locate the sources of pollution and find ways to clean it up. The cleanup work is to begin in 1991. The costs are estimated at \$2.7 million.

## Effects of Air Pollution in Former GDR Studied

91WN0127A Berlin DER WALD in German  
Oct 90 pp 294-297

[Article by Dr. D. Bieberstein, Ministry of Foodstuffs, Agriculture, and Forestry, Berlin; Report 615, "New Types of Forest Damage": "Air Pollutants in the Former GDR: Reducing The Emission of Pollutants in the Air—The Basis for The Recovery of Our Forests"]

[Text] Among the air pollutants that can result in devastating damage to forests in the former GDR are sulfur compounds and, increasingly since the beginning of the 1980's, oxides of nitrogen ( $\text{NO}_x$ ), ozone ( $\text{O}_3$ ) and conversion products that are created under the influence of light (PAN), which are classified as photooxidants, and the group of chlorofluorocarbons (CFC).

While the emission of sulfur compounds was sharply reduced in the FRG, this pollutant is the determining factor in the extent of the damage in our country in regions with classic forest damage.

However, the new forms of forest damage can be attributed to the pollutants  $\text{NO}_x$ ,  $\text{O}_3$  and photooxidants in the air.

Hofmann and his group (1990) provided an overview of the types of emissions and their regional distribution in the territory of the former GDR. Because of the overlap of local and long-distance transportation [of the pollutants], it is still very complicated even today to match the emitters to the damage. The overall balance concerning the discharge of pollutants in the air in our own country and their importation from and exportation to other regions also have to be seen in a new light as the result of political and economic changes in the former GDR and in neighboring countries. Because of increased environmental awareness, an improvement in air quality in central Europe can be anticipated in the near future.

When considering the damage resulting from pollutants in the air to the forest ecosystems (vegetation and soil), biotic and atmospheric factors, as well as the degree of use and the type of forest management, must also be taken into consideration. Attention has been drawn repeatedly to the complexity and the devastating damage resulting from secondary events.

## Emission of Pollutants

Concrete information about the emission of pollutants was published for the first time for the area in the "Environmental Report of the GDR" of March 1990. The figures are of great importance in characterizing the situation of clean air, the necessary measures for reducing the pollution level and for evaluating the activities and opportunities of the forest industry in forest management.

In the report on the environment (1990) current environmental conditions are aptly characterized: "Caused



by an annual discharge of 2.2 million tons of dust and 5.2 million tons of sulfur dioxide, the GDR currently has the highest pollution levels of all European countries" (p 7).

The growth of sulfur dioxide emissions in the bezirks draws attention to the gravity of the situation and reveals the permanent effects (Table 1).

**Table 1: Growth of Sulfur Dioxide Emissions (in Kilotons)**

Bezirk	1980	1982	1984	1986	1988
Berlin	72.8	53.7	42.5	51.1	67.0
Cottbus	950.5	1,125.5	1,179.3	1,298.2	1,373.4
Dresden	310.1	354.3	447.5	519.7	416.1
Erfurt	153.6	173.7	211.4	238.6	231.7
Frankfurt/Oder	127.4	129.4	119.2	115.0	121.0
Gera	139.2	132.1	158.3	168.1	177.6
Halle	985.7	1,060.3	1,113.3	1,072.0	985.5
Chemnitz	245.9	217.4	274.6	292.4	275.3
Leipzig	773.8	804.0	934.9	973.0	936.2
Magdeburg	175.2	181.3	194.5	229.0	190.3
Neubrandenburg	44.7	39.8	62.0	77.2	63.0
Potsdam	88.4	85.2	89.9	95.5	115.8
Rostock	64.1	51.3	50.0	56.3	69.0
Schwerin	56.3	52.9	60.9	63.4	75.0
Suhl	76.6	90.1	100.6	112.5	111.7
GDR Total	4,264.3	4,551.0	5,038.3	5,358.3	5,208.7

The overall balance of large cross-border flows of SO<sub>2</sub> clearly reveals the international significance and responsibility for the

emission of sulfur dioxide (Table 2).

**Table 2: Cross-Border Mass Flows of SO<sub>2</sub> (1988)  
(Data Provided by The GDR to the ECE  
[Economic Commission for Europe (UN)])**

Country	Out of GDR	Into GDR
	in Kilotons	
Norway, Sweden, Finland	128	0
Poland	486	36
CSFR	432	112
FRG	188	82

They also give cause to reflect on the sources in the damage area and provide information about the mass flows of long-distance transportation.

For many areas, dust pollution is directly linked with the high levels of SO<sub>2</sub> pollution. The report on the environment

states that "the GDR" records "pollution levels of 0.14 tons/inhabitant and 20 tons/km<sup>2</sup>, with a discharge of 2.2 million tons/year" (p 14). The emission of dust reveals a level that is much too high from the years 1980 to 1988, with a sharp differentiation among the bezirks (Table 3).

**Table 3: Growth of Dust Emissions (in Kilotons)**

Bezirk	1980	1982	1984	1986	1988
Berlin	57.0	34.1	36.8	28.8	30.0
Cottbus	642.5	659.8	557.6	530.4	474.9
Dresden	260.5	227.8	242.8	239.8	223.2
Erfurt	77.5	91.0	95.6	108.6	133.3
Frankfurt/Oder	122.3	96.8	87.5	95.6	100.9
Gera	58.2	59.8	62.7	54.4	56.0
Halle	524.5	514.7	489.6	514.3	470.7

Table 3: Growth of Dust Emissions (in Kilotons) (Continued)

Bezirk	1980	1982	1984	1986	1988
Chemnitz	105.7	103.1	106.4	105.3	107.0
Leipzig	287.8	286.1	248.6	266.0	236.3
Magdeburg	114.1	131.8	111.1	129.4	140.6
Neubrandenburg	28.4	29.3	39.8	45.5	43.3
Potsdam	56.8	55.6	76.3	75.0	63.7
Rostock	20.2	16.4	29.2	39.7	35.5
Schwerin	63.9	40.4	38.5	42.5	38.9
Suhl	36.9	38.5	44.8	48.3	44.2
GDR Total	2,456.3	2,385.2	2,267.4	2,322.8	2,198.5

There are extremely high concentrations in the densely populated and heavily industrial regions of Cottbus, Dessau-Bitterfeld-Wolfen and Leipzig.

Table 4 lists the pollution of our natural resources from nitrous oxide emissions by bezirk. To the sulfur dioxide emissions from stationary installations must be added the amounts from mobile sources, i.e., from traffic. For 1988 they are put at about 300 kilotons. So the discharge of nitrous oxide in the GDR is about 700 kilotons/year (p 18).

Table 4: Growth of Emissions of Oxides of Nitrogen (in Kilotons/Year)\*

Bezirk	1985	1986	1987	1988
Berlin	6.6	8.0	8.1	8.8
Cottbus	130.2	161.1	133.2	138.0
Dresden	30.7	30.9	30.8	29.5
Erfurt	11.7	12.6	14.5	13.1
Frankfurt/Oder	15.8	15.9	16.2	17.7
Gera	10.2	10.9	10.5	9.9
Halle	58.2	60.7	62.9	68.7
Chemnitz	16.8	16.6	17.6	17.3
Leipzig	44.8	37.5	42.5	41.8

Magdeburg	11.8	13.0	13.4	12.0
Neubrandenburg	4.6	5.9	4.4	4.1
Potsdam	29.4	30.3	32.3	33.4
Rostock	4.3	4.2	4.9	4.8
Schwerin	3.2	3.3	3.6	3.7
Suhl	5.3	5.6	5.8	5.5
GDR Total	383.6	416.5	400.7	408.3

\* Stationary installations, without transport

This brief presentation of the amount and concentration of the two principle pollutants, SO<sub>2</sub> and NO<sub>x</sub>, and the high level of air pollution make it quite clear that it is high time to do battle with the causes of air contamination, the emission of pollutants at the site of their production, in industry, in transport, and agriculture, and to bring about a reduction in the short term through technical measures. Our entire attention must be turned to this strategic objective.

In the FRG, as the result of legislative and technical measures, efforts to substantially reduce the emissions of sulfur dioxide and to halt the increase of oxides of nitrogen, even with increasing industrialization and growing vehicular traffic, have been successful (Table 5).

Table 5: Emission of Sulfur Dioxide, Oxides of Nitrogen, and Dust in the FRG (in Kilotons/Year)

Pollutant	1966	1970	1978	1986	Prospect 1995
SO <sub>2</sub>	3,400	3,700	3,400	2,200	1,000
NO <sub>x</sub>	1,900	2,300	2,800	3,000	2,000
Dust	800	1,300	700	550	500

Source: Environmental Policy, Government Report to the Bundestag, 4th Government Report on Emissions Protection, 1988

The outlook for 1995 shows that with all the efforts made, a high level will still remain.

#### Forest Damage as the Result of Air Pollutants

The evolutionary line of the inventory of forest damage, published in 1990 by Kallweit and Grambof for the period between 1987 and 1989 for the GDR, shows clearly that medium and severe damage has risen from

8.6 percent to 16.4 percent in only three years and are therefore above the approximately methodically comparable level in the FRG.

In the report on forest damage by the FRG, 15.9 percent is indicated for 1989 in this group (without author, 1990). At the international level, soil damage resulting from the influx of acid precipitation is regarded as cause for great concern.

### Predictions for Forest Development

This trend clearly illustrates the seriousness of the situation. Using the Prognosis and Decision Model for Environmental Protection (PEMU), Hofmann, Anders, and Bellmann (1988) simulated the development of stands of spruce under the influence of SO<sub>2</sub> pollutants in the air, as a function of the concentration and duration of their effects and, using real features of stands of trees from the forest data bank, they determine their chances of survival in order to derive decisions.

Deegan and Liebold, using a similar model, command our attention with a forecast of the development of the spruce forests in the Erzgebirge and the Elbsandsteingebiet in Issue 8 of this periodical. The comparison of two forecast periods has serious implications and shows that an entire region is in very serious danger.

Our aim must be to counter an ecological devaluation of this high-density area, to preserve the additional wooded growth of the forests, and to prevent wood loss and depreciation of its value (desiccation, fungus attack).

This forecast for the next 20 years makes clear at the same time that measures with far-reaching effects have to be introduced urgently in order to reduce the extent of SO<sub>2</sub> emissions rapidly and to prevent the influx of NO<sub>x</sub>.

This applies both to the direct effects on vegetation and soil and in combination with biotic and atmospheric damage factors, which must be taken no less seriously, as examples in the Thuringian Forst and neighboring countries show.

The overall pollutant balances and the influx of pollutants, both measured and calculated, and the occurrence of peak readings in certain weather conditions show that for the present and near future a very high threat to the forest still exists from the effect of pollutants in dry or wet deposition on the forest stands and forest soil.

In spite of all efforts to minimize the effects through management based on stability, liming with Mg [magnesium] and liquid leaf fertilization with Mg, and the targeted planting of smoke-tolerant tree species and specially bred strains, reducing the discharge of pollutants remains the focal task for the present and future.

### Meeting International Commitments and Legal Amalgamation

With the unification of the two German states and the associated amalgamation of laws, commitments in environmental policy to reduce emissions will also come into effect in our area.

According to the federal government's report to the German Bundestag on the internationally agreed upon commitments to reduce contamination of the air (1990), the basic commitments include the Geneva Clean Air Convention of 1979, the results of the Second Conference on the Protection of the North Sea 1988, and the

bilateral agreements on the environment to reduce the discharge of contaminants in the air.

In this context, the federal government is participating in the subsidization of demonstration projects in the former GDR, in financing pilot projects for low-pollutant technologies in incinerators, such as the circulating stratified vortex firing for high-ballast soft coal in Magdeburg, stratified vortex firing in the Staaken thermal generating station, among others.

Of great importance for the concrete reduction of pollutants are the material-related commitments, which were signed by the FRG in 1985 as part of the of the United Nations Environmental Program (UNEP) to protect the ozone layer, and the Montreal Protocol of 1987, particularly with regard to the establishment of limits for the production and the use of chlorofluorocarbon (CFC).

Two ECE [Economic Commission for Europe (UN)]-wide regulations are of particular importance for reducing pollutants in our area. With the Helsinki Protocol of 1985, 21 countries from East and West banded together to reduce sulfur emissions by at least 30 percent by 1993—compared with the level of 1980.

In the FRG, the commitment to reduction is being met by the enactment of the Federal Emission Protection Law, particularly through the ordinance on large-scale firing plants and the Technical Directive Air [TA-Luft]. By 1993, a further 30-percent reduction of sulfur emissions—compared with the level of 1980—will be achieved, a reduction of 60 percent.

The Sofia Protocol and the Declaration on the Limitation of NO<sub>x</sub> Emissions of 1988 contain the binding international commitment to freeze the annual emission of nitrous oxide or its cross-border flow at the level of 1987. They [the protocol and declaration] provide for the reduction of NO<sub>x</sub> by 30 percent by 1998, compared with the emission of one year between 1980 and 1985.

The EC guideline of 1984 to combat air pollution from industrial installations will be adapted in German-German law in the Federal Emission Protection Law and the regulations passed for its enforcement.

Great attention is being paid in the FRG to conforming with the EG plant-related guideline to combat air pollution from industrial installations, large firing plants, trash incineration plants and transport-related commitments, such as reducing pollutants from passenger cars with gasoline engines, diesel engines, commercial vehicles and reducing pollutants in gasoline, light heating oil and diesel fuel. The legal foundation and the strict checks and monitoring of air quality will ensure compliance with the stated objectives.

### Immediate Measures in the Former GDR

As a result of evaluating Helsinki and Sofia, work was carried out in the former GDR to reduce the output of airborne pollutants, particularly SO<sub>2</sub>, NO and NO<sub>x</sub>. But

the unequivocal conclusion has to be that no reduction in pollutants resulted and ratification of the treaties did not take place.

In the former GDR immediate measures were established after the change to clean up areas severely contaminated by air pollution by halting production and restricting production, which will result in an initial reduction in air and water pollution.

A new energy plan provides for an improvement in the efficiency of energy production and the reduction of the use of high-sulfur soft coal, the application of modern firing technologies and the installation of equipment to reduce the discharge of sulfur dioxide and dust.

With the amalgamation of the legal systems many more factories, plant operators, and vehicle owners will be forced to comply with the technical requirements for clean air in the case of new installations and, if necessary, to carry out the necessary retroactive modifications. In the 1990 environmental report a broad range of immediate measures is laid out, which cannot be discussed in detail here. Already there are signs that not only are "environmental companies" being formed to compete for the introduction of magnesium-bearing lime at affordable prices, but there are already numerous domestic and foreign companies that are working to convert plants to clean air based on changed technologies and the installation of environmentally friendly oil and gas heating plants.

The Law on the Testing of Selected Investment Projects Which Cause Emissions for Environmental Compatibility, which will be enforced in the former GDR after 1 August 1990, obligates the entrepreneurs to prove in the case of such new installations with a professional report that the environment will not be endangered.

Agriculture and forestry will also have to satisfy these new requirements for improving air quality.

In agriculture, the objective is to reduce air pollution from nitrogen, in particular by reducing the size of the herds in major animal production facilities and improved environmentally sound liquid manure management (immediate incorporation and reduction of emissions from stalls).

With respect to the global project "Protecting the Earth's Atmosphere" every forester can make his contribution by stopping the burning of the residue from cutting.

By actively cooperating in the environmental committees in the territory and through effective broad informational work, every forester in particular is urged to support the requirement of environmental protection to improve clean air by enforcing the law and contribute, for example, to ensuring that the predictions made by Liebold and Deegen for the Erzgebirge and the Elbsandstein region, which have to be taken seriously, do not come true, but rather that the advance of the damage can

be halted, and instead of preservation, the rehabilitation of the forest can be initiated over wide areas.

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[Box, p 295]

### Our Common Future

#### Brundlandt Report

"While they are being transported in the atmosphere, emissions consisting of sulfur dioxide and nitrogen oxide, in addition to volatile hydrocarbons, are converted into sulfur and saltpeter acids, ammoniac compounds and ozone. They fall to the ground as dry particles or with rain, snow, frost, fog, and dew, often many hundreds or thousands of kilometers from their origin.

These materials damage vegetation, contribute to the contamination of the soil and water and corrode buildings, metal construction and vehicles, causing billions of dollars in damage every year."

*Helsinki Protocol*

Reducing the emission of sulfur and its cross-border flow by at least 30 percent by 1993, compared to 1980.

The FRG's commitment to reduction will be met by implementing the Federal Emission Protection Law, particularly the large firing plant ordinance and Technical Directive Air [TA-Luft].

Compared to 1980 levels a reduction of more than 60 percent will be achieved.

(Not ratified by the GDR)

*Sophia Protocol*

contains the international commitment to freeze annual nitrous oxide emissions or their cross-border flow at the 1987 level; this goal has to be reached by 1994.

Measures in the FRG ensure their fulfilment through:

- major firing plant ordinance;
- Technical Directive Air
- increasing percentage of low-pollution automobiles.

Reduction of nitrous oxides emissions by 1998 by 30 percent, compared with a year between 1980 and 1985.

Target in the producer area 50 percent lower than in the referent year.

Exceed the 30 percent road traffic reduction.

(Not ratified by the GDR)

**ITALY**

**Company Develops Nonpolluting Reagents**

91MI0057A Milan *ITALIA OGGI in Italian*  
9 Nov 90 p 24

[Text] The Enimont group has developed a new process for the synthesis of dimethylcarbonate, which is expected to open up new markets for chemicals that are increasingly more compatible with the environment.

In less than two years, researchers directed by Luigi Cassar at the Enichem Synthesis company have succeeded in developing a new intermediate, dimethylcarbonate, with decidedly good prospects for development. In fact, they have succeeded in developing a series of widely used consumer products from this material, namely new monomers for use in optics, compounds used in the synthesis process of pesticides and pharmaceuticals, isocyanates and polycarbonates for the production of plastics and polyurethanes. Other substances that are of fundamental importance in the production of lubricants, insecticides, and various other goods are currently being tested. The success of this activity foreshadows a bright future for the chemistry of dimethylcarbonate. Spokesman from Enichem Synthesis stated:

"We have made a quantum leap; this result is unique and has been achieved in a record time: less than ten years."

The need to replace some of the reagents that have been most widely used by the chemical industry since the early 1980's, such as phosgene, methyl chloride, and dimethylphosphate underlied the research carried out by technicians at Enichem Synthesis. These substances are all very reactive and have two serious drawbacks: the formation of large amounts of waste and the need for expensive safety measures. Phosgene, methyl chloride, and dimethylphosphate are also highly toxic, thus posing a serious threat to the environment. The replacement of these reagents, therefore, represents a billion-lire business for Enichem. Phosgene is manufactured throughout the world, with a total output of 2 million metric tons a year. The production of dimethylsulfate and methyl chloride amounts to several hundreds of thousands of metric tons a year.

According to technicians, dimethylcarbonate offers many advantages. This chemical intermediate, which is a derivative of carbon dioxide, is non-toxic and versatile. The substance's structural characteristics are very similar of those of phosgene and dimethylsulfate but are guaranteed to be far less polluting.

**Water Purification Technology Developed**

91MI0039A Milan *ITALIA OGGI in Italian*  
20-21 Oct 90 p 24

[Text] A new technology for the purification of surface waters (rivers, lakes) intended for drinking use was presented by Montefluos, the Ferruzzi group company that operates in the sector of the chemistry of fluorine.

The technology permits halogenated organic compounds, toxic substances which are the subject of strict regulatory controls, to be eliminated from the water. In particular, a new European regulation is about to be defined for these substances that will set more restrictive concentration levels than those currently in effect. "It basically involves adding a hydrogen peroxide-based additive in the primary phase of the purification process which generally uses chlorine," explain the company technicians. "In this way the formation of compounds such as tri-olo-methanes that are a danger to health is impeded without further measures".

The new technology has already been tested in the field at Genoa's municipal installation at the Val Noci aqueduct. According to Montefluos, the results of the test showed a reduction in the concentration of halogens of up to 50 percent, bringing them below the limits set by law. Other experiments are currently under way at the Venice and Turin aqueducts.

"The practical implementation of the hydrogen peroxide process," affirmed Carlo Cogliati, managing director of Montefluos, "is simple from the management and installation point of view. The high quality results permit even



waters of 'poor' quality, like those of Italian rivers, to be recuperated for drinking use."

Montefluos produces about 40,000 metric tons of peroxides in its Bussi (Pescara) plant each year.

In terms of market value, production corresponds to 15 percent of the company's revenue which in 1989 was 500 billion lire. The company directors predict that the new technology will generate an additional market potential of approximately 1,500 metric tons per year.

## NETHERLANDS

### Government Launches Remote Sensing Program

91AN0060A Zoetermeer WETENSCHAPSBELEID  
in Dutch Oct 90 p 24

[Text] The Dutch Cabinet has earmarked 33 million guilders to stimulate the application of earth observation techniques. The aim is to collect data on the Earth's surface and to study ongoing processes using satellites or aircraft. This technology is known as remote sensing.

The cabinet has approved a cooperative program involving the government and the private sector.

The 33 million guilders in funding comes from seven ministries (including education and science) and will cover a period of 5 years.

Transport and Public Works Minister J.R.H. Maij-Weggen has been tasked with the administration of the National Remote Sensing Program; program execution is being carried out by the Remote Sensing Policy Commission (BCRS); and program management by the Geometrics Department of the Ministry of Transport and Public Works.

The program consists of four research areas:

- meteorology and oceanography;
- tidal and inland waters;
- landscaping, agriculture, forestry, and environmental conservation;
- climatological and environment research.

The aim is to introduce remote sensing applications in all user sectors of the government and industry and, eventually, to establish a permanent Dutch remote sensing organization.

### Clean Catalyst Reprocessing Technology Developed

91AN0016A Rijswijk POLYTECHNISCH WEEKBLAD  
in Dutch 20 Sep 90 p 11

[Article by Gerard van Nifterik: "New Process for Recycling Used Catalysts"]

[Excerpts] Southeast of Heerlen, a plant is being constructed for recycling catalysts used in petrochemical

desulfurization installations. It will implement the "Metrex" process, a new method developed by the Division of Technology for Society of the Dutch Central Organization for Applied Scientific Research (TNO/MT), React Ltd. (UK), and Chemconserve BV of Rijswijk. The installation will become operational in June 1991.

Used catalysts from the oil industry present a real problem, especially those catalysts used in desulfurization processes, such as hydrodesulfurization or HDS catalysts.

Used HDS catalysts normally contain aluminum oxide (the catalyst's carrier material), nickel, molybdenum, cobalt, and vanadium; i.e., all of them metals with a considerable economic value, but which cause environmental problems when scrapped. Used catalysts of this type have previously been reused in the steel industry, but this can no longer be done. Dumping is becoming highly controversial: At present, even strictly controlled dumping is no longer permitted in many European countries.

For this reason, TNO, Chemconserve, and React Ltd. looked for a new, efficient reprocessing method presenting fewer drawbacks than existing methods.

The initial feasibility studies by these three companies finally resulted in the establishment of the Metrex plant (end 1988). In a later phase several banks and the Limburg Institute for Development and Financing (LIOF) became stockholders. [passage omitted]

### Waste Materials

According to the developers, the Metrex process does not present a waste problem: All metals are completely recovered except for a relatively small amount of sulfur-containing metal. According to a Metrex' spokesperson, an additional advantage of the process is that it is flexible and can recover either pure (cobalt and nickel) or saline metals. Profitability does not depend on specific metal contents (e.g., vanadium), but, compared to existing methods, the Metrex process is much more complex.

### Process

The Metrex process is also suitable for other metal-containing waste products, such as hydroxide slurries, other catalyst wastes, mordants, etc.

As of the end of this year, when Metrex' storage facilities become available, used HDS catalysts will be stored there; initially, this will be done in an inert atmosphere because they can be pyrophoric. Actual reprocessing will begin in June 1991.

The first process step consists in incineration in a vortex burner at temperatures of 800 to 850 degrees Celsius. Carbons and hydrocarbons are removed and metal sulfides are transformed into oxides. The SO<sub>2</sub> released

during incineration is then washed out of the burning fumes and turned into plaster of Paris.

The treated catalyzer is then leached out with sulfuric acid, during which process most of the metal oxides are dissolved. Via vacuum filtration and a washing process, the aluminum residue and dissolved metals are separated. The residue can be used in the ceramics industry.

Molybdenum, vanadium, cobalt, nickel, and part of the dissolved aluminum are then extracted from the metal solution using a solvent-extracting process.

Molybdenum is extracted in the form of a concentrated molybdenum ammonium; vanadium in the form of ammonium vanadate crystals. Cobalt and nickel are separated and recovered as metals through electrolysis.

## UNITED KINGDOM

### Farmers' Efforts To Cut Pollution Told

91WN0146A London THE DAILY TELEGRAPH  
in English 2 Nov 90 p 6

[Article by David Brown]

[Text] Farmers have spent more than L36 million in under two years to cut pollution problems, Baroness Trumpington, Agriculture Minister, said yesterday.

About 11,500 farmers had notified the Government that they were claiming grants to meet half of costs under the Farm and Conservation Grant Scheme, which was introduced in February 1989.

The ministry had allocated L50 million over five years and paid out more than L18 million to farmers who were installing improved facilities to prevent toxic slurry and other farm effluents leaking into rivers and underground water courses.

Baroness Trumpington said the uptake of the grants was an encouraging sign of efforts to reduce environmental pollution and represented a substantial impact on the problem of farm wastes.

While farm pollution incidents fell by 30 percent last year, the Government was determined to tighten controls, she told a conference on agriculture and the environment at Cheltenham, Glos, organized by Lloyds Bank, the Country Landowners' Association and the ministry's ADAS advisory service.

The new Environmental Protection Bill, she said, would increase the maximum penalties which could be imposed by magistrates for pollution offenses from L2,000 to L20,000. A new advisory code of practice for farmers was also being drawn up.

Baroness Trumpington's statement followed criticism of farm pollution by Lord Crickhowell, chairman of the National Rivers Authority, who said that farm pollution was the main reason for worsening river quality in many parts of the country.

He called for a national strategy for farm waste management implemented by farmers with the help of expert advice.

The National Farmers' Union said many farmers were making considerable financial sacrifices at a time of falling incomes to meet the new anti-pollution controls.